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### A HORSE'S FOOT.

WHEN we consider the persistency with which fashion has ever presumed to regulate the foot-gear of man and woman, we need not be surprised if a greater ignorance should exist as to the needs of the horse's foot. We feel, therefore, that no apology is necessary for keeping open this question, so vital to the trooper in all his work.

It was XENOPHON, our most ancient authority on the horse, who said, "In respect then to his body we assert that we must first examine his feet." So let us do likewise, and first from a mechanical point of view. Mankind, in all constructions of aids to locomotion and in all structures that are to be subjected to shocks, has learned to make use of springs or of some combination of levers to take up, absorb, or transmit the shocks. It is thus that the locomotive, rigid in certain parts, is flexible in others, and one has but to contrast the sensations when riding a luxurious coach to those experienced in a "dead axle" wagon to fully realize the importance of the springs with which the coach is provided.

Nature has provided each form of animal life with that which best serves the purpose. In all we find a combination of both springs and levers. The springs are the muscles and the tendons which attach them to the bones; the levers are the bones them-

selves and all are arranged so as to best serve the purpose intended. In the legs and feet they are so arranged as to gradually take up, or transmit to the rest of the body, the shocks which are continually recurring as the animal walks, runs or jumps. Mechanically considered then, the horse's foot is a combination of springs and levers. By "the foot," understand that the whole structure from the so-called knee in the fore, and the hock in the hind leg, downward, is to be considered. Comparative anatomy teaches us that all this belongs to the foot properly, and that the hoof is simply the toe, though generally called the foot.

The foot then, so considered, is at the end of the arm and thigh, which are but simple levers by the aid of which the horse jerks up, advances or withdraws his foot and supports his body. They are the *loci* of the muscles that immediately act on the foot through their tendons. They also are placed, in connection with the rest of his bony frame, so as to advantageously transmit the shocks of his step at the various gaits.

It is important to consider the order to which these levers belong. Comparatively weak man can move heavy masses by the aid of levers of a certain order, and he considers that the time consumed is amply repaid by the end accomplished. But such levers would not do for general use in our animal economy. Here we have need of quick motion through a wide range of arc, and levers, the reverse of those used by man in his work with heavy masses, must be used, even though the force necessary to produce such motion be largely in excess of the effect. Such levers we find in the legs and feet of the horse and all other animals.

We, therefore, have the hoof at the end of a system of levers, actuated by springs and all working together to bear the horse's weight when standing, to propel him forward or backward when moving, and to give such ease and lightness to his tread as will produce the least shock, fatigue and wear to his structure and vitality.

Now let us consider the foot anatomically to see what nature has done to fit it for its functions. Briefly then, we have first the bony frame upon which the foot is built and around which are grouped all the multitudinous parts.

This bony frame consists of first the "cannon bone" which extends downward from the so-called knee in the fore, and the hock in the hind leg. Below this comes the "long pastern," then the "short pastern," and last the "coffin bone." These four bones are articulated together in the order stated, the joint in each case being of such a nature as to readily admit of motion laterally, but not



transversely except in a minor degree. We see at once the admirable nature of the motion for which provision is made, giving to the foot a great flexibility in the direction needed, and comparative rigidity in the other, to prevent it from wobbling around or turning over sideways.

Behind the articulation of the short pastern and the coffin bone we find the navicular bone. This corresponds in its nature and office to our knee cap. It affords a point over which the back tendon is stretched, thereby increasing its power by changing its line of traction just before it ends in its final fastening in the bottom of the coffin bone.

When man builds, within his limited means, he seeks such weight and strength of parts as best subserve his ends. Nature, in similar manner, formed the horse's foot. Here we need strength to bear great weight, and to withstand severe shock. Here we also need lightness, for the foot is at the end of a long lever having wide and rapid motion, and with the seat of power far removed. Consequently we find that the bones of the foot are as light as possible, commensurate with the strength required. They are of open texture internally and dense and strong externally. Man probably learned the use of the hollow column from just such cases in nature. Such are the bones of the horse's foot, so far as they are of interest to our present subject.

Taking up next the coverings, the tendons are of first importance. The chief of these are the back or flexor and the front or extensor tendons. The back tendon is used not only in picking up and flexing the foot but it also forms the means whereby the foot is maintained in its oblique and springy position. When weight is borne it is under constant tension. Without it the pastern would sink down until in contact with the ground and the horse would then stand practically upon the end of his cannon bone.

Interlaced with the many ramifications of these principal tendons, binding the bones and parts of the foot closely together, we have a wonderful network of arteries and veins.

Coming next to what is generally called the foot, *i. e.*, the toe, let us examine it carefully, for here lies the chief seat of prevailing ignorance and abuse. No reference to eminent authors or to our daily practice is necessary to show that man *acts* as though this foot or toe was simply an insensate mass of horn, to be carved, whittled, rasped and burned with perfect impunity. How far is this true and how far false?

The coffin bone forms the base of the horse's toe and about it are grouped all the array of parts which have their office in producing the hoof.

Underneath the seat of the flexor tendon and its union with the coffin bone we have the "plantar cushion" or "soft" or "fatty frog." It is directly within and shaped like the "horny" or "external frog." Between the two the "inner" or "sensitive sole" extends over the entire interior surface of the bottom of the hoof. The fatty frog, the inner sole, and the inner wall of the hoof are permeated everywhere by a ramified system of arteries and veins. They are also most exquisitely sensitive, being filled with nerves in all directions.

Externally we have the "horny frog," the "outer sole" and the "outer" or "horny wall" of the hoof. The upper border of the latter is surmounted by the so-called "coronary ring" which secretes the horn of the wall.

We thus have ultimately a hard, horny box, forming the envelope which covers and protects all the parts surrounding the coffin bone, and which first receives all the shocks to which the foot is subject.

Now this horn of the hoof, the nails on our fingers, the hair on our heads and the skin on our bodies are all one and the same thing under different forms. Nature gives this material the form best suited for use in each case, and in the horse's foot it is composed of hair-like fibers, parallel with each other, projecting downward from the coronary ring which secretes them. They are all compacted together so as to form a dense, hard, *almost* impervious wall *externally*, so as to be well fitted to withstand either use or injury. This wall is not absolutely impervious, as we know that it soaks up oil, grease or water, placed thereon. But *internally* the structure is soft and spongy, and full of a moisture of its own. The hard horn of the exterior shades gradually into softer horn, until we arrive at the inner wall. The external wall is generally considered non-sensitive and it is probably so on the immediate exterior, but the depth of this non-sensitive part probably varies in different horses and in all is probably much less than is generally supposed.

All who are familiar with the appearance of the under side of a mushroom will have noticed the delicate folds with which nature has formed it. So it is with both the external and internal walls of the hoof. The *interior* of the *external* wall and the *exterior* of the *internal* wall, are both formed with just such delicate folds. There are something like six hundred of these in both the external and internal wall.

This inner wall is sensitive even to the most remote edge of the most delicate fold. It is highly surcharged with blood and as these folds intermesh with the external wall we can see how little margin there may be in the latter before it begins to be sensitive. All who have had teeth filled, know how exquisite the pain of the operation, even when far removed from the seat of the nerve. We all may have had wedges between our teeth to separate them, and if so, we know the constant dull ache from their presence. How must it be therefore for the foot when a nail is driven into the non-sensitive wall and *almost* but *not quite* touches these sensitive laminae? Decidedly uncomfortable even, if not absolutely painful, the horse would say if he could talk.

Besides the pain which may be caused, we must consider the nail driving from another point. It opens a vent for the escape of the natural internal moisture, not only by the hole but by the splitting apart of the hair-like fibers. This escaping moisture dries up the inner part of the external wall, deadens the cushion and causes a stiffness to all the motions of the internal foot that certainly should not obtain.

To go further, let us smear the hoof with grease, oil or blacking, as so many do to make it look pretty. The hoof absorbs this foreign material, all of an oxidizing, heat-producing and moisture-absorbing nature, and again we have deadened our cushion and disabled our horse. At first the damage may be but slight, but as time goes on the effect begins to be seen.

So much for the wall of the foot, next comes the sole. As the foot must sustain weight we should expect nature to form it so as to be able to bear pressure from above downwards and a corresponding pressure from below upwards. Hence we find the bones protected underneath by a large and springy cushion, while beneath this is an arched sole and another cushion. In the natural foot, the external wall comes down to a strong, sharp and comparatively thin edge. We find a large and springy cushion that bears upon the ground, and that is fitted by shape and texture to give a firm bearing and we find the external sole closely united to the external wall, while this latter wall is bent inward at the heels, forming the bars. Between these bars is the frog, the whole forming a surface inherently strong and suited to give a firm grip upon the surface our horse may stand or work upon, to prevent his slipping or to propel him forward.

Now the pressure of the horse's weight, transmitted downward through the bones of his legs, ultimately reaches his coffin bones.

In each foot this coffin bone transmits its pressure, first to the inner frog, then to the sensitive sole, then in turn on the outer sole, the frog, bars and edge of the external wall. It would be instructive to measure the pressure per square inch that is distributed over the entire external foot. But it is enough to say, that the pressure is enormous, and that each part of the foot has its part to play. Remove or impair any one part and you at once throw an undue share of the burden on those left. "Cut away the bars," "pare down the frog," "pare out the sole till it gives to the pressure of the thumb," "cut away the wall," "open out the heels," and what have you left for your horse to stand upon? Nothing but the inner frog, the inner sensitive sole, a weakened outer sole, and the weakened edge of the wall. The external frog bears no pressure as it does not touch the ground after trimming and shoeing.

The horn of the sole is less dense than that of the wall, it is more flexible and pliable and is fitted to sustain both weight and wear. It has the peculiarity of shedding off in flakes as new horn is formed from within and hence no knife is ever needed to remove it. Like the wall it becomes softer within and has a moisture of its own, and its purpose in forming a cushion is the same.

Like the inner and outer wall, the inner and outer sole are intimately connected; cut away the sole and you not only come upon softer horn for the horse to tread upon, but as you expose this soft horn to the air and denude the foot of so much natural covering, you open up a vent for the escape of moisture, cause premature hardening of the horn, deaden your cushion and introduce a dangerous exposure of the inner sole.

In the frog the horn is also fibrous, but softer and tougher, and it also comes away in flakes as the natural wear is replenished, and never needs a knife. Pare it and you at once produce the same results as those described with the sole and wall. Keep it from pressure on the ground and you at once impair its functions and deprive the horse of a part of nature's apparatus for preventing shock or slip.

Having now considered the horse's foot, both mechanically and anatomically, let us glance at it as a means of support and locomotion. We see at once that the fore legs are mainly weight bearers and that the hind legs are formed for propulsion as well as weight bearing; consequently the fore feet are larger, more nearly circular, and form the extremities of upright columns, that when our horse is standing are rigid from the pastern to the elbow and flexible at the pastern and *above* the elbow. The hind feet are smaller, more

nearly oval in shape, the length greater than the width and they are the extremities of a system of levers suited for propulsion. The articulations of these levers from the hip down to the pastern are all oblique and springy and never rigid.

The Muybridge photographs clearly show the nature of this work. As the horse moves off his weight is propelled forward mainly by the hind feet and legs; the fore feet and legs are thrown forward in succession to form new points of support while the hind legs are being gathered for a new impulse—not but that the fore feet have power to assist motion in themselves, but it is a dragging and *not* a pushing motion. A horse will assist himself greatly in climbing or in starting a heavy load by the clinging and pulling action of his fore feet, but, nevertheless, his main propulsion is through his hind legs and feet.

While the foot is being raised the flexor tendon is in play; the extensor tendon straightens the leg and foot while it is being carried forward ready to be placed upon the ground. Just before placing the foot the two tendons are practically at rest, but the moment the foot is planted the flexor tendon is again at work to sustain the horse's weight by preventing the pastern from undue bending, thereby giving part of the spring required to make the horse tread lightly, saving his body from the rude shocks that would otherwise be caused by his feet successively striking the ground under the impulse of the hind legs and his own weight. It might prove profitable to calculate the amount of living force with which a horse's foot strikes the ground as he moves rapidly forward.

These repeated blows being taken up by the internal structure of the hoof, great wear must be expected. Nature therefore steps in and supplies material to replace waste, through the blood. Where the waste is greatest we find the largest supply of blood to make it good. Every motion means so much broken down tissue to be carried away by the veins and to be replaced through the arteries. The greater the supply of blood then the more rapidly is the waste made good, and the faster is the horn secreted to replace that which is being worn away.

There is more than this; under the stimulus of action and the increased circulation requisite to supply the waste, nature builds the new material more dense. *The horn under such conditions becomes as hard as flint*, and more and more suited to withstand wear until at last a balance is attained and the hoof maintains itself, the supply of material being equal to the demand, and the waste is supplied without any undue strain upon the circulatory organs.

This is not mere theory; we see it everywhere about us. The high-born dame may find that nature has only supplied her delicate hands with enough blood to make good the trivial waste that went on while she pursued such light work as suited her taste, but let her use the broom or scrubbing brush, and at first her hands may blister, but under the stimulating action of her work the necessary blood will be supplied and her hands become hard at last. So with the athlete, griping his oar or handling clubs; so with the "horny handed son of toil," and so with all, both man and beast.

A recent article in *Harper's Magazine* tells us of the travel and work performed by the West Indian female porters. They travel barefooted, carrying weights up to one hundred and fifty pounds, over distances ranging as high as fifty miles a day. This is a regular task, and no mention is made of any of these porters being laid up from becoming sore-footed. On the contrary, we are told that "the soles of her feet are toughened so as to feel no asperities and present to sharp pebbles a surface at once yielding and resisting, like a cushion of solid caoutchouc."

Now if the human foot can stand such work uninjured, up hill, down dale, over a hard gritty limestone highway, then why cannot the horse's foot do the same? It is fitted by nature to stand just such work. It has a large, tough, springy cushion in its frog upon which to tread—a cushion that will wear out no more rapidly than the bottom of the human foot; the horn will become hard and *tough* if properly treated, and as able to stand wear as the human foot.

And who has not read of the custom of the European peasants when traveling to market? They carry heavy loads for long distances, and travel barefooted until about to arrive at the market place. Then only do they put on their shoes so as to complete their holiday attire. They habitually work and travel barefooted, and only wear shoes for dress occasions. Their economy and thrift prevent the useless wear upon shoes that are an expensive luxury. Hence man when used as a beast of burden will travel uninjured with nature's apparatus; so also may the "quick moving soliped," if man will only let nature alone, or assist her properly. Thus nature in her own way provides her own remedies, and under *no* circumstances of proper use is an artificial protection necessary, *provided the foot is left as nature made it and due care is exercised to maintain it so.*

The time when first the horse was brought under man's dominion is lost in remote antiquity. Whence he came is also obscure. Cer-

tain it is that through all historic time he has been domesticated and it is reasonably certain that he originated in the wilds of central Asia. The time when he was first shod is also uncertain, but it is placed by some writers as late as the fifth century of our present era. He was certainly not shod by the ancients, and for thousands of years he was uncursed by knife or rasp.

Why then should he be shod now? Has his foot undergone a change with the lapse of time? Did he go limping, halt and lame for thousands of years? Do our wild horses of the plain and mountain carry equine farriers in their herds? Verily, we must look to other causes to find the reason for the first shoe.

Nature's supply of material does not cease when there is no demand, but the horse, used in a low meadow country, will have a moist and spongy hoof. It will also be broader and flatter, the better to sustain him from sinking into the soft ground. Here there is but little waste and hence the hoof becomes soft and nature enlarges the foot to fit it the better for existing conditions. This is not done in a day, but that it will be done in the end can admit of no doubt. The horse's foot under these conditions is only fitted for a loose and soft soil; if used thereon and only thereon his feet will stand the wear and tear without shoes.

But man's requirements compel his use where occasion calls. Man has found it necessary to improve his roads until they are as hard as iron, and all soil is not soft or free from stones. Now take the soft, but perfectly natural hoof and use it on an iron road or rocky soil and what then? The soft horn then coming into constant contact with ground harder than itself, rapidly wears away. Nature is not given time to repair the undue waste and finally a lame horse is the consequence and hence the first shoe. *Man in his neglect of the changed conditions* assigns as the reason for the lameness what he considers to be the inability of the hoof to sustain the wear without an artificial protection.

This unnatural use of the horse corresponds to the every day treatment of colts. They are turned out to pasture to run with the mares on turf and low meadows and grow up with soft hoofs and then, being broken and put to work before any effort has been made to harden the hoof, they become lame if they are not shod.

We see it gravely asserted by many modern writers, *that the hoof should be soft and spongy to be natural* and our Army Regulations were for years disgraced by a paragraph containing instructions for the *weekly* stuffing of a horse's feet with a mixture of wet clay or cow manure. And what for, pray! Because the idea prevailed and still



prevails that a *hard hoof* is *unnatural* and therefore must be stuffed to keep it soft, whereas, traced back to his barren home, in the desert wastes of Central Asia, on the sands of Arabia and northern Egypt, we find the horse as nature made him, living in a hot, dry air, on a flinty soil, and his foot as it should be, *hard and dense, firm and small*, able to stand the wear and tear of the soil upon which he is bred and certainly able to work upon any other.

It is contended by some, that the hoof must be kept soft to prevent lameness, because of the structure of the internal foot. It is argued that if the hoof is left hard it will contract and pinch the inner foot. It is claimed that moisture and softness are necessary to assist nature in providing the necessary cushions to take up shock, etc. These arguments are not based on a proper realization of the nature of the horse's foot and the manner in which it should perform its office. The internal moisture is provided to keep the inner wall, and its union with the outer wall, soft and flexible, and nature certainly should know best what amount of moisture is needed. The exterior surface of the external wall and sole are made hard and tough, not only to be able to withstand wear or injury, but also to prevent the unnatural evaporation of the moisture of the internal foot.

And with ourselves, though we may bathe and wash our feet and bodies, for what do we do it? Does the athlete bathe to soften his muscles? Does he soak his hands to render them soft and so fit them for his work with oar or his gymnastic apparatus? Does the pedestrian soak his feet to soften them and thereby put himself in shape for his "six days go as you please?" Does the pugilist bathe to soften his skin so as to render it able to stand the blows he may receive in his next encounter? On the contrary, the bath in each case is wisely regulated to cleanse and make healthy the skin; to promote the respiration; to give it firmness, as well also to give strength to the underlying muscles, and in *no* case to give softness as is the case when we soak or stuff the horse's feet.

That moisture is foreign to the nature of the external foot of the horse is abundantly proved by his natural habit when left to shift for himself, unrestrained by anything but the bounds of nature. We all know how dainty the horse is as to wetting his feet; his foot is not formed for moist or marshy ground, and he instinctively seeks the hard upland rather than the soft meadow. With cloven hoofed animals all this is different. How often do we see the lazy kine standing deep in marsh, fearlessly seeking such ground in preference



to any other, knowing well that their feet will bear them up safely, and keep them from sticking fast.

A study of comparative geology will show us how the horse is the descendant of the five toed and three toed animals that preceded him, and that lived when their habitat was mainly marsh, and they had feet to correspond. As the world became drier, and the habits of these animals changed, their toes were dropped one by one until we have our one toed horse as the result, fitted for dry ground only. The key to this whole matter then is to copy nature, give the horse hard ground to stand upon, let nature do the rest, and you have solved the whole problem.

To show that this was well understood by the ancients it is only necessary to refer again to XENOPHON. In his treatise on Horsemanship, already quoted, we read as follows: "As attention must be paid to a horse's food and exercise, that his body may be vigorous, *so must care be likewise taken of his feet. Damp and smooth stable floors injure even naturally good hoofs*, and to prevent them from being damp they ought to be sloping; to prevent them from being smooth *they should have stones inserted in the ground close to one another*, similar to the horse's hoof in size; for such stable floors *give firmness to the feet that stand upon them.* \* \* \* \* \*

"The ground outside of the stable may be put into excellent condition and *serve to strengthen the horse's feet, if a person throw down in it here and there four or five loads of round stones, large enough to fill the two hands and almost a pound in weight*, surrounding them with an iron rim so that they may not be scattered, *for as the horse stands on these he will be in much the same condition as if he were to travel part of every day on a stony road.*

"As a horse must move his hoofs when he is rubbed, or when he is annoyed with flies, as much as when he is walking, and the stones which are there spread out strengthen the *frogs of his feet*, and *as we must take care of the hoofs that they may be hard*, so we must take care of the mouth, etc."

Again in his "Hippiarchicus," XENOPHON repeats the same instructions in other words. Could anything be more explicit, or more nearly in accordance with the requirements of nature? And how do these quotations compare as to sense and knowledge with the ignorance displayed by the old regulation as to "stuffing?" And where do we find such stable floors or such picket lines? Not in our service, surely; and our modern ideas are shown by the new floors of the stables for the Artillery post at Fort Riley. These are of plank, the very worst floor a horse can stand upon, instead of cobble-stones laid in cement and asphalt, as they should be.

It is refreshing to contemplate the great advance which has been made within two years in the theory and practice of horseshoeing, as shown by G. O., No. 16, A. G. O., 1888. Contrasted with what has been, and as an evidence of what might be, it is a wonderful advance. Compare it to DUNBAR, GOODENOUGH, and to our tactics and regulations, which until recently were our only guides; compare it to MILES' system, and to any other except FLEMING's, from which it is evidently taken, and we see that our horses at last have some little chance of being left unmaimed. *We have but to go a step further, drop the shoe entirely, pave our stable floors and our picket lines with cobble-stones, and we will have then made all the advance possible.*

But unfortunately an order is one thing and its enforcement is another. Taking the service as a whole in consideration this order may be said to be unobserved. Less than six months ago, government blacksmiths could be seen whittling out enough chips from a horse's feet to fill a forage cap. All of the old practices might be seen in vogue even though a copy of the order was prominently posted in the shop where it was done. Recently a case occurred where *the frogs were cut out completely*, by direction of a field officer of cavalry, and the acting veterinary of a regiment declared that a horse suffering from a sprain should have his feet trimmed out, the bars cut away and the frog pared off, in order to cure him of lameness. This same acting veterinary declared that the feet of all the horses in a battery were simply monstrous, and all needed cutting down; whereas these feet are natural and perfect, they have not been shod for years, they have been uncursed by knife or rasp for months, they have the bars intact, the heels unopened, the frogs uncut, the soles unmutilated, and they can travel freely over anything.

The order in question *must be enforced*, or it is as good as a dead letter. Many a man in the mounted service has yet to learn that this order gives the true way to treat a horse's foot to prepare it for shoeing. He must also learn to obey orders, even though he has no faith in the method prescribed, and not till then will the horse's feet have a chance to become as nearly perfect as is possible with shoes thereon.

But, admitting that the order is obeyed and that the unmutilated foot is shod, let us see what we will find. There are evils of horseshoeing other than those caused by driving nails. Look at the foot as a weight-bearing medium and see what happens as the natural foot is placed on the ground or lifted from it, and then compare this with the effect when a shoe is on.

As all the parts act as levers, cushions or springs, and as all the weight is ultimately thrown upon the hoof, we should expect to see some change in form and size of our horny case when weight is thrown thereon or is removed therefrom. Hence the hoof is not bound together rigidly at the heels, and under pressure downwards it expands, and free from pressure it contracts. This expansion and counter contraction may be slight, but they nevertheless exist, and mainly at the heels. Now when the rigid shoe is fixed in place and firmly held by nails, the expansion then exists also, but under what changed conditions! The external wall is bound to a nearly inflexible shape, and the soft inner parts are repeatedly squeezed against the more or less rigid wall, and against the nails driven therein. This evil has been recognized time and again by the efforts of inventors to find a shoe either with a flexible joint at the toe, or to find a shoe that can be secured without nails, and leave the hoof free to expand and contract.

Our claim is therefore that even the simplest shoe, applied in the most rational manner, cannot be used without injury to the foot. FLEMING recognizes this in his "Practical Horseshoeing," but he still persists in using the shoe as the lesser of two evils, maintaining that the foot must be shod to stand the wear and tear of work. He utterly ignores nature in his treatment of the foot. He *assumes* that the foot cannot stand going unshod, not because he has tried and failed with hoofs properly prepared, but because he never sees a foot unless it is one that has been shod, has been abused by shoeing, and has therefore been put into such condition as to be unable at first to work without it. Such an idea as making the hoofs hard would appear to have never been entertained by him, and, seeing that the horse with a cast shoe or with his shoes just removed always goes lame, he argues that the shoe is necessary to prevent lameness. Whereas our claim is that the hoof needs no such protection if *rationaly and naturally treated*, and that therefore all shoes are an unmixed evil.

In the greater number of systems in vogue in civil as well as military circles, and even under the system as set forth in the General Order above quoted, it is either held or practised that the frog must not touch the ground. In MILES' system, as laid down in NOLAN's "Cavalry Horse," it is gravely stated that the frog must be kept from the ground by the shape of the shoe, or else it will strike upon and be bruised by the hard stones, and so produce navicular disease and incurable lameness. Other authors are no better, and it is useless to answer that these authors are obsolete; they repre-

sent what is done every day, for the ordinary shoe cannot be put on the ordinarily trimmed hoof without raising the frog from the ground so as to relieve it from all but accidental pressure. As to the navicular disease, a horse never had it, except perhaps as the result of a *puncture* of the foot, until after he was shod. What sad and empty argument it is to charge nature with a blunder now, after the ages she has spent in fashioning the foot to the horse; that frog was forged by many thousands of years of adaptation and change, and yet proud man comes in with fire and iron, to call it wrong at last.

An unused part soon shrinks in size and finally becomes useless, and so with the frog. If kept from the ground by the shoe its use as a cushion is prevented; it loses the stimulus nature intended it should receive; it ceases to grow except in a poor feeble way and its function finally stops.

Nature places the hoof at the end of a long and delicate lever that demands lightness the nearer we approach the end; now let us nail two pounds of iron upon the end and see how much extra work is entailed at a slow gait. Thirty steps a minute means eighteen hundred steps an hour for each foot, fourteen thousand four hundred steps in eight hours, and this means a total weight of over sixty-five long tons lifted in that time—taking a two and one-half pound shoe. Nothing can be absolutely known as to the amount of vital energy and muscular force necessary to do this work; but it is evident that it must be enormous, even at the slow gait considered, and how must it be when the horse is trotting, or running his best. We see what a tremendous waste has been imposed upon him. No wonder we see so many leg weary horses on a forced march. No wonder we see so many five hundred dollar horses with five dollar legs!

It is urged that even though unnecessary on bare ground, the horse must be "rough" shod to work on the icy roads of winter. It has been abundantly proved that the horse, with natural hoofs, is better able to work on slippery ground than the best rough shod horse that ever stepped. Having had personal experience on this point we will tell of one case. Being the fortunate possessor of a horse that had never been cursed by knife or shoe, I rode him daily in the dead of winter to and from the river where ice was being cut. The ground was covered with ice. The ride was at a hard gallop and sometimes at a run, back and forth repeatedly each day, across country, and not on the beaten road. The barefooted horse never slipped, or showed any hesitancy in taking the ice. His hard, sharp hoofs cut into the ice as deeply as any caulkin, his frog bore upon the ice as firmly as a rubber pad, and his stride was as free

and fearless as though on bare ground. One day this horse got the best of his rider, and started on a run across the Platte river, on comparatively thin ice. 'Twas neither time nor place to do anything else but run, and with whip and spur away we went to get across without breaking through. It was a novel and not particularly agreeable experience; but it taught a lesson how a horse could travel on smooth ice barefooted, for there was never a slip or slide, but the freest of running.

It will be objected that if what has been said above is true, why do we then shoe our horses? If our reasons as to the first shoe are accepted we see at once why the shoe having once been put on, and our horse's foot forced to an artificial condition, it becomes necessary to keep on shoeing. For in the general case our necessities do not give us time to let nature undo the mischief we have wrought.

Fashion, conservatism, and general ignorance, all conduce to perpetuate the practice, and to entail on the horse the pain and punishment that all shoeing causes. Half tried experiments and those made without a due appreciation of a *hard hoof*, have aided more than anything else to convince the skeptic even against his will that shoeing is absolutely imperative.

As to the ignorance on the subject, any work on horse-shoeing will show that it is recognized by the profession. Consult, for instance, Wood's "Horse and Man" to see that, "the managers of the R. S. P. C. A. have openly declared that they will prosecute any one who rides or drives a horse without shoes. They refuse to make themselves acquainted with the structure of the hoof, to listen to argument or to examine proofs. Mostly they have made up their minds that to drive a horse over hard roads without shoes would be as cruel as to make a man take off his shoes and run over the stones at once. Sometimes they have consulted farriers, grooms, etc., and of course, have been told that a horse to travel roads unshod would be impossible, because if the hard iron be worn away by friction the comparatively soft horn could not possibly endure the work." FLEMING, MAYHEW and many others might be quoted in support of this to show the prevailing ignorance, prejudice and superstition on the subject.

Again it is perpetuated because it is the means of livelihood of a large class of artisans. A great many believe that in shoeing the horse they are benefiting him as well as earning an honest living for themselves. Tradition, and the practice of the shop, confirms them in the belief, and they have no idea of painful and cruel abuse. What a general cry of cruelty to animals and of rage at

losing a means of support would be at once set up if there was any general movement to abandon the custom. The trade in horseshoes and nails would at once be lost. The manufacturer and the artisan who make them would lose their business. Thus the custom is strongly intrenched behind monied interests, and man's greed we know often leads him to abuse his fellow knowingly and willingly. What chance then does the horse have against such interests?

Reform can only come by appealing to the *horse owner*; by showing him how he is losing money and valuable service by the practice; by addressing his interest rather than his love for his horse.

The educated veterinary surgeon, even though he knows better, must conciliate to earn a living in his profession. Single-handed he cannot hope to successfully fight against ignorance or greed, or the ill report that would be given of him by the vast array of farriers, grooms and others who make their living about a horse. The whole trade would be arrayed against him, and would be outraged at what they would believe to be an effort against them and their means of support. Only once have we found a farrier who was honest enough to say that it was to his interest to have horses shod, and even though he knew it to be needless, he certainly should not preach any such doctrine and lose his only trade.

But in the army we have no such excuse. We are independent of all opinions of grooms or farriers. We should be able to control our actions, independent of prejudice. If, after careful experiment and well digested information, we find we have been upholding a custom, which takes from our efficiency in the field, we can simply lop off the custom and restore our horses to their natural state.

That something should be done can be readily shown by a reference to the official instructions that were our only guides until March, 1888. The regulations have been improved by the omission of all the instructions as to horseshoeing. What the new drill books for cavalry and artillery may contain is as yet unknown, but the present tactics contain a most carefully described and complete method for crippling a horse.

Among the arguments which are advanced in favor of shoeing it is said that man's own experience as a shod animal teaches him to shoe his horses also. It is said that because a horse goes lame on the removal of shoes they must be put back again because man does the same. Such premises are false, and consequently the conclusions are erroneous. Man is a shod animal because he is a civilized animal; as such he wears clothes for decency and for warmth. The eternal fitness of things—bare feet would hardly be in keeping with a "claw-

hammer" coat—and the protection of the feet from cold, both demand shoes; they are not demanded from any inability of the foot to stand the wear and tear of going naked. But as with man, when first he strips off his shoes and goes barefooted even on the smooth sands of the bathing beach and finds he is uncomfortable, so with the horse when first his shoes are removed. An artificial condition has been imposed on both, and a weak and damaged foot has resulted, that of course must suffer until nature has had time to restore the natural condition. Give us time, and what is the result? The man can walk and run, jump and climb, fearlessly and without injury on his naked feet, and so can the horse. This we have proved to our own satisfaction, not to the extent of going barefooted, but by experience with thin moccasins in the mountains of Arizona. At first it was agony to wear them; but in a short time no pain was felt at treading on the sharpest stones, and moccasins were worn for over three years' field service. And another thing was demonstrated by the same experience. These moccasins were first put on to replace a pair of heavy cavalry boots that were considered "the thing" for a cavalryman to wear, and that were worn in ignorance of what field service in Arizona meant. The heavy boots nearly killed the wearer from the weight he was forced to carry during the many long ascents and descents that had to be made. It was found from a bitter experience how the poor horse must feel who has to lift a heavy shoe repeatedly all day long, and it was discovered what a blessed thing it was to be relieved from that burden, and to be left free to climb and cling with a nearly natural foot, free from everything but a trifle over its own weight.

Man can remove his shoes and other foot covering when he is through his work, and we all know the relief that follows. If such a relief rests us, would it not also rest our horse after his long day's march? We all know how many unsuccessful efforts have been made to find a shoe that would allow of this very thing being done. And we must all acknowledge that the shoe is useless or needless when the horse is at rest, no matter how necessary it may be when he is at work.

Man shoes his feet for comfort and for warmth, but the iron of the horse's shoe acts as a rapid conductor to carry away the natural heat of the foot and thereby makes it colder instead of warmer in our cold winter season. You may say a horse's foot is non-sensitive to cold. No one knows this, but if true, *how* is it so? It is through the rapid circulation that takes place through the arteries and veins already mentioned. Very well, this blood has then the



function of warming as well as building the foot. Take away from the natural warmth by the presence of a large mass of a good conductor, constantly absorbing and dissipating heat; pare down the thin covering and permit the internal warmth to be the more readily absorbed, and what then? Are we not depriving the foot of just so much energy and preventing its proper building up, by an unnatural absorption of the heat from the blood, leaving thereby but a small margin to keep up the growth and health of the foot?

That all this is not mere speculation will now be shown by a few cold facts. Every day for nearly two years the writer of this has been thrown in contact with the horses of Light Battery "F," Fourth Artillery. All the old horses, but one, have been unshod during all this time and the one shod horse has simply toe-plates upon his hind feet to protect a weak and diseased hoof, the result of abusive shoeing. These horses stand at least five hours a day upon a picket-line as hard as broken stone can make it; not a hoof, except those of the one horse mentioned, is diseased in any way, and there are none but are so hard that a knife will hardly cut them.

These horses have been drilled daily, Saturdays and Sundays excepted, from April to November, at all gaits and for at least two hours a day. Besides this they have marched frequently on all kinds of roads, and during all this time not a horse has been sick or sorry from being unshod.

The method pursued in hardening these horses' feet is that outlined in these pages. A lot of new horses were received in July, 1888. The shoes were removed, the horses were put on the picket line and almost all went lame at once. Toe-plates of steel were put on their feet and they were made gradually accustomed to the hard picket-line by frequently resting them on a line not made hard with stones. They were all used more or less at drill during this time, and soon their feet began to show a new form and to approach to nature's model. The frog grew and expanded and rested on the ground at every step; the sole became hard and dense; the walls became hard and tough, instead of hard and brittle; chipping stopped; the bars grew out, and one by one the plates were removed, until now not one remains and these horses tread as fearlessly and as painlessly over rocks and stones as do the old ones. All this was done in less than six months, as the last toe-plate was removed by January, 1889.

For several years prior to 1887 the old horses of the battery were shod and their feet regularly "stuffed" as required by the Regulations, during the drill season, but the shoes were removed during the



winter. From personal observation it is known that the picket-line was of soft dirt, was wet, muddy and sloppy, and that no especial effort was made to harden the horses' feet, but the reverse, as shown by the "stuffing."

In the spring of 1887, the horses being then unshod, they were left so at the beginning of the drill season. They were drilled daily in this unshod condition on turf, the picket-line remaining in the same soft condition. During the summer the battery marched to Mankato, a distance of ninety miles. The first part of the road being sandy and soft, no trouble was experienced, but the last part being hard and stony, the hoofs began to break up. Arriving at Mankato, though none of the horses were lame or footsore, it was thought best to shoe to avoid a possible disaster on the return march; but the shoes were set without cutting or mutilating sole or frog. On the return to Fort Snelling all the hind shoes and a greater part of the front shoes were at once removed.

The battery had to go to Chicago in the early fall. The horses went as they were, mostly unshod, and while there were severely used on pavements, roads and turfs for something like three weeks. At one time the battery marched at a rapid trot over paved streets for about five miles, following a troop of cavalry, as the President's escort. Not a hoof was even chipped as the result.

Returning from Chicago, all of the remaining shoes were removed, and have not since been replaced. In the spring of 1888, the picket line was dressed with broken stone to a depth of nearly a foot, and the horses placed thereon. At first they were a little uneasy, and pawed a good deal, but they did not go lame, soon became used to it as their hoofs hardened, and since that time they have stood on nothing else when out of stable. The floors of the stable are made as hard as well rammed clay and gravel can make them. Cobble-stones were not to be had for either picket line or stable floors. All droppings are at once removed by the stable guard, so that the horses do not stand in filth to heat and injure their feet.

The success of the above experiment is beyond all question. The cause of the partial failure at first is sufficiently obvious, and the feet of these horses are now in such a condition as to be able to stand anything, no matter how severe, except being cut and trimmed, softened and reshod.

One of the veterinaries at St. Paul, and a man who says that he believes in shoeing, lately said that the horses of the battery had the finest set of feet he had ever seen, and that they could march a thousand miles over any kind of a road with impunity.

They have been exercised daily over ice and snow through two winters. They tread fearlessly and free, without slip or slide, over the hardest of ice and the most slippery of slush. They stand up and travel where sharp horses slip and fall.

Instances of cavalry experiences could also be given, showing how horses have been owned for three years and over, that never wore a shoe, and were ridden and driven anywhere and everywhere without going lame. The case might be noted, of a certain bare-footed mare, that was ridden eleven miles in forty-five minutes, and inside of twenty minutes more was turned around and ridden back over the same distance in fifty-five minutes without a chip, split or crack to her hoofs.

The case of the Indian pony has often been brought forth to show that barefooted horses cannot stand their work unhurt. It is generally taken for granted that the Indian pony represents a natural horse, as nearly as may be possible with one that is used by man. It is contended that his hoofs are as near nature's model as well can be, and yet he goes lame when taken over rocky roads and mountain trails. Now it is a fact that the Indian leaves his pony most severely alone so far as hardening the hoof goes, but the animal when not in use is kept on turf and sod, and has soft although otherwise natural hoofs. He runs where the soil abrades but little and his hoof is like that of the colt, and therefore unable to stand long use on the rough mountain trail. On the plains, of course, he may go unshod with impunity, but his hoofs have not been hardened—artificially, if you choose—by exposure to a stony picket line or stone stable floor, and hence he fails when taken on soil harder than turf. The same might be said of Japanese horses, which wear straw sandals to protect the feet on rocky roads, but as the treatment of these horses when at rest is not known, we may presume that it differs not from that of the Indian pony and the horse of civilized man.

No plea on the score of economy will be offered. If shoeing is right, let us have it, even though the material cost a dollar an ounce.

Of late much interest and attention has been awakened in this subject, due to Major RODNEY's recent article on horse-shoeing in a number of the *Journal of the Military Service Institution*; we take pleasure in here noticing the main objections advanced.

Colonel BERNARD makes the positive assertion that the wild horse "never voluntarily goes fast over a rocky country," and "never stands to rest on a rocky soil, but seeks the shade of trees where the earth is dry and soft." The Colonel's information on this subject differs from everything that has been gathered by the writer of this article,

who still believes that the wild horse does by choice frequent the wildest and rockiest mountain regions, and can fearlessly and painlessly climb, run, jump and travel where we are taught to believe only the goat or chamois is at home. If this is a mistake, then the observations of travelers in Asia and India, in South America and our own wild West are all valueless.

Captain GODFREY gives evidence as to the additional sore footedness of the horses at the Military Academy when without shoes, and says their feet rapidly broke up when put to work upon the cavalry plain at artillery drill. But it must be remembered that these horses had been previously shod. Presumably their feet were not in a natural condition, for not enough time had been given for nature to undo the mischief resulting from shoeing, and of course the feet broke up. Then again, after the drill was over, the shoes having been removed, these horses were put in a rocky pasture and their feet broke up again. It was to be expected they would, for again the transition was too violent. Had these horses been simply shod with light steel toe-plates, or three-quarter shoes set so as to give frog pressure and wear on the sole, and simply to have protected the edge of the wall, then the case would have been different and the feet would have gradually assumed a natural form and have become able to stand more severe service. This was by no means a failure of the cobble-stone picket line for hardening purposes. The horses were shod at least part of the time when standing thereon. This shoeing in all probability kept the feet cut down, prevented frog pressure and kept the sole of the foot from contact with the stones. There was just enough shoeing to keep the feet in a weak and brittle condition, so as to undo all the good that otherwise would have resulted from the wear on the stones.

Another point has been made that as the horse has an artificial condition imposed upon him he needs an artificial protection in the form of a shoe. It is doubtless true that the horse has more work to do with his feet when used under the saddle or in harness, than when free from all burden. But does it follow that nature is not equal to the task of supplying material to make good the extra waste? Doubtless something must be done to stimulate the foot to cause an increase of circulation so as to supply extra material, and that is just what the horses are put on the stone picket line for, to keep up a stimulus, to wear away the horn as it grows, and at the same time to cause the new material to become harder until at last the hoof sustains itself in a durable condition. Call this an artificial condition if you please; it is not more so than that of the laborer's

hand, and it is a condition more nearly approaching nature than when we put on an iron shoe, which introduces conditions favorable for every ill.

Again reference has been made to this hardening process as though it might be injurious to the delicate parts of the foot. Paradoxical as it may seem, this hardening process is used expressly as a protector, to and means of stimulating the growth of these tender parts. These parts are all *internal* and they are so related to and connected with the hard *external* parts, that the harder these latter are, the better, to give the protection needed. Then the sole will not spring in, or be dented by every stone, causing pain to the internal sole and frog. Then the wall will be firm and hard enough to stand shocks and blows and cause no pain to the internal wall or the front of the coffin bone, and then the natural internal moisture will not be allowed to evaporate, keeping all internal parts lubricated, springy and able to move upon themselves without pain or stiffness.

In Colonel HAMILTON's article, published in the *Army and Navy Journal* some months ago, mention was made of the feet of the horses he saw in Mexico, years ago. He speaks of the cobble-stone floors to the stables which he found there. He tells of the fearless manner in which these horses were ridden over paved streets and the manner in which the hoofs rang as they clattered over the stones. This shows that we advocate nothing new, and that the hardening process has been long used with success.

There is an argument, that the best veterinary practice advocates shoeing. So be it; turn to the practice of medicine and see how the theories of centuries have been dropped in the last few years. Veterinary science is young indeed, and if it took a thousand years for medicine to learn that a fever patient could be fed on pounded ice without being killed thereby, we need not be surprised if the younger art should learn a lesson now.

We all know how much time is generally given by the horse owner to the subject of his horse's feet. That is the groom's business and not his as a general rule, no matter how costly the horse or how expensive the whole outfit. The horse owner generally has not the time at his command to devote any but scant attention to his horse's care.

No mention whatever has been made of any kind of shoe that might be advantageously used. This was purposely done because we believe that no shoes are necessary for any kind of service. But that all objections may be met, it will now be stated that a rubber pad might be made to fasten over the entire hoof in the same manner

as the Japanese straw sandal, to protect the foot when on particularly hard or gritty ground. The experience with bicycle tires would seem to indicate that durability could be given such a pad, so as to stand a large amount of wear in the exceptional places where it might be needed, and certainly its use could not be detrimental to the foot on account of the comparatively infrequent and short intervals that would demand it. Such a pad could be devised so as to be readily put on or taken off, and could be carried by the trooper or in the battery wagon so as always to be ready for use. This use would be like the protection a working man gives his hands under exceptional cases. We all know that the blacksmith and hot-iron worker can fearlessly handle iron so hot that it would burn a delicate palm and yet he can't handle red-hot iron with impunity. As to *iron* shoes, let us have none of them. If a shoe must be used then let it be of *steel*, made as light as possible, as proposed by Captain HARRIS. Such were the plates with which the new horses of Battery "F" were shod, and they stood wear without any binding or breaking. We certainly should discard the Burden shoe as an abomination.

In changing station from Minnesota to Kansas, Battery "F," Fourth Artillery, did not march because the cost of marching, including the hire of the necessary wagon transportation, the transportation of forage, etc., made it more expensive than to move by rail. It was hoped that we might march, just for the reason that the test could be made, but it was decided otherwise.

One word more as to the stone picket-line now being built by Battery "F," Fourth Artillery, at Fort Riley, Kansas. The ground was first ploughed up and then thoroughly gone over so as to break up all the lumps and clods and to grade it with a *slope towards the center*. A central ditch, about 2x2 feet, was dug the whole length of the line and filled with large broken stone, to form a "blind drain," and then the process of building up commenced. The ground was broken in the manner described, both for the purpose of grading and giving a surface upon which the stone used in building up would bed. Cobble-stones could not be had and consequently the stone of the country had to be used. This was laid on in quite large blocks as close together as possible and so as to form a uniform layer of rocks for a foundation. On this, smaller stone is laid, so as to bring the whole up to an even surface and grade, with nothing but sharp rock for the horses to stand upon. A filling of sand is to be used so as to help bind the rocks in place and at the same time to prevent the gradual filling in of manure between the stones. By this means

a hard, rough surface will be formed, and at the same time one that can be kept clean.

The slope to the center is purposely given because it has been found that the horse stands more comfortably thereon. He always seeks a position sloping a little towards the head, and if forced to stand on a slope that pitches from his head to his tail, he soon rectifies the matter by pawing out a hole for his forefeet and then stands content. Fill this hole in, repair and build up the center of the line and he paws it out as fast as you fill it in.

The central drain takes all the drainage from the line, so that no pools of urine stand there. Moisture and mud will also be prevented and it is thought that the line will maintain itself in good condition the whole year through.

Blind drains in rear of the horses can also be made if found necessary. These need not be so large as the central drain; they would serve, however, to collect and carry away all water that would flow toward the line from outside ground in case of a heavy rain and also help carry away a portion of the urine or other moisture that would fall on the line. These blind drains are carried out and beyond the end of the line so as to empty their contents on the surface, at a distance removed from the line proper, so as not to form cess-pools to collect all the liquid filth of the line.

CHARLES D. PARKHURST,  
*First Lieutenant Fourth Artillery.*

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## DISCUSSION.

Captain HENRY W. WESSELLS, JR., Third Cavalry:

The matter of horses going without shoes is one which has occupied my attention for quite a number of years, but never having kept notes on the subject, I have now nothing but my memory to rely on.

While serving in the Department of the Platte we were brought into constant contact with the Sioux, Cheyenne and other tribes of plain Indians, who owned large herds of ponies. The hoofs of these animals were always in perfect condition, while those of my troop had corns, contracted feet, quarter cracks and other ailments. As our blacksmiths were as good as the average, it became evident to me that shoeing was not thoroughly understood in our cavalry. It then occurred to me that the foot of an Indian pony could not differ in substance from that of a cavalry horse, and that if the for-

mer could get along with bare feet in Nebraska, Wyoming and Dakota, the latter could do so just as well. Accordingly I had the shoes removed in 1875, and for several years did not trouble the supply department for shoes. At times, however, a commanding officer would order the horses shod, but as soon as I got away from him the shoes would come off again. As a result the troubles mentioned disappeared and no horse became lame through the want of shoes.

At Fort Washakie in Wyoming, the horses were shod on account of the presence of small sharp stones in the soil and because I feared being ordered on a mountain scout, which I knew from Arizona experience would lame a barefooted animal in two days.

In the winter of 1876, returning from the Cheyenne expedition, the troop was ordered to march to Sidney Barracks, Nebraska. Before leaving the head of Belle Fourche river, I directed, surreptitiously, that the shoes be removed and the horses went barefooted to Sidney. For some distance the troop marched behind one of another regiment, in which the horses were rough shod. The snow would collect in a hard ball inside of these shoes and the animals would slip and slide, and sometimes, going up a smooth hill, they would fall on their sides, endangering the safety of the riders. In addition to all this the horses were much fatigued. My barefooted horses collected no snow and traveled along just as well as on the bald prairie. Before the command left Crazy Woman's Fork on this same trip, a trooper had his spine broken by his horse falling upon him in going up a slight, slippery ascent, a thing that could not have happened if the horse had been barefooted.

In 1885, marching from Arizona to Texas, we had a horse which had never been shod on account of the trouble he gave whenever shoeing was attempted. He traveled seven hundred and fifty miles and at the end of the journey his feet were in fine condition, the horn as hard as rock and the frog broad and firm. Although the material of this horse's hoofs differed in nothing from that of the other six hundred horses, an officer would have been considered insane had he proposed marching that command barefooted. The horse is still unshod and he can gallop over the hardest roads without wincing.

My troop horses, with few and brief exceptions, have not been shod since November, 1888. They have just marched one hundred and sixty miles in eight days, over a road that was stony, part of the way. On their arrival there were some tender feet, that is, tender in going over ground where sharp stones predominated, but an in-

spection revealed no wearing away of the sole of the foot, and apparently no reason for soreness. To-day they are all right and could march from San Antonio to Fort Leavenworth unshod.

In Texas, where there is so much riding, there is comparatively little shoeing. It is said that horses running at large in the State will have on one range long and unsightly hoofs, which are troublesome in moving about, while in another locality, where the stones crop out, the feet are soon restored to proper shape.

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Captain FRANCIS MOORE, Ninth Cavalry:

It has long been my opinion that horse-shoeing is overdone in the army and on every good opportunity I have had the shoes removed from my troop horses. At one time when all my horses were unshod, I was suddenly required to furnish a number of men to pursue a couple of Indians who had escaped from the post guard-house. The detachment left, and after traveling fast and far for several days, returned without a lame horse. It was several years after this incident before I could get permission to make a general experiment. In the fall of 1885, as a concession, I was given authority to remove the shoes from the hind feet, and since that time no horse has been lame therefrom. It has happened, however, that no very severe or long marches have been made since that time—the hardest test being about four hundred miles of continuous marching. This and other experiments have convinced me that under moderate conditions of service the troop horse can perform his work without shoes on his hind feet. It may be different with battery horses, which have to use their hind feet more.

Now as to the forefeet. On arriving at Fort Leavenworth, in the fall of 1886, I had the shoes removed from the forefeet also. The picket-line answers somewhat the description of that used by Light Battery "F," Fourth Artillery. It consists of two portions, one of which is covered with hard cinders and the other is made of crushed rock, like any macadamized road. The horses stand on the former during the forenoon, and in the afternoon on the latter. For a long time quite a number of horses became lame in the forefeet,—they were put on sick report and rested, but were not shod. The severe test for them was patrol duty, which required a horse to walk principally on hard, rock roads for eight hours out of twenty-four, and is no light trial for the foot of an unshod horse. Most of them stood it, however, and now perform this duty as well as the ordinary drill, without sign of lameness. A number of them could



not stand the test, and I have now ten horses wearing fore shoes. After persisting for about a year I found that they occasionally became lame and tender, so I was compelled to replace the shoes in front to have them fit for duty.

Whether cavalry horses can perform their duties under all conditions of service without shoes, is a question upon which I am very much in doubt. While I have great faith that they can, so far as the hind feet are concerned, when it comes to the forefeet I think many will fail. In active service every kind of country has to be covered, wet and dry, sandy and stony. The horse may be for many hours in mud and water with no hard picket-line to stand on; the hoof absorbs moisture and becomes soft, so that when a dry and stony country is encountered the hoof is ground down and soon worn to the quick.

I am often asked, "Your horses being unshod, what would you do when ordered into the field?" I reply, "Carry my shoes and use them only when necessary."

After all it is a matter for more extended experiment. If Light Battery "F," whose horses' feet have been prepared and hardened, can succeed in marching to the camp of the fall maneuvers, take part in the exercises, and return to Fort Riley without lameness to the horses from the absence of shoes, then about all that is claimed by Lieutenant PARKHURST will be conceded.

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Captain EARL D. THOMAS, Fifth Cavalry:

It has been my custom to keep horses unshod as long as possible. When shoes were used it was only where the condition of the hoof rendered it imperative, and they were removed when the necessity passed. In fact, so firm an advocate am I of the theory that horses in a majority of instances are better off in a natural state than when shod by the ordinary "smith," that I have frequently kept them without shoes longer than was beneficial. Experience and actual facts show however, that there are times when horses must be shod; to know when and how this should be done, how to care for the feet and what shoes to select, are matters of far more importance than the solution of questions of endurance in pounding on a rocky picket-line.

In Arizona it was impossible, no matter how perfect the feet, to travel over the roads and trails of that region with unshod horses. If it had been possible the Indians would, without doubt, have kept up extensive herds, for their capture of horses from stockmen and

emigrants, from time to time, were numerous, and there are no people in the world more fond of riding and ease in traveling than the Apaches. The horses would have had ample practice, standing on rocks, in that genial clime. But the Apaches usually dined on horse steaks on the third day after capture, that time being sufficient to wear the hoof down almost to the quick. From time to time half-bred horses were purchased from stockmen between Los Angeles and San Diego, and sent to the territory for use as cavalry mounts. Yet it was impossible to drive these horses across the country unless their feet were protected.

As good a *broncho* as ever trod that soil was ridden by myself for three years there, but he could not move a hundred yards without going lame after throwing a shoe; this horse had perfect feet, and had been herded on a rocky range from the time of foaling to his entry into service at five years of age.

The Pima and Maricopa Indians on the Gila and Salt rivers, manage by careful nursing and good management to keep their horses in good shape, and necessity compels them to go without shoes. These Indians are as fond of riding shod ponies as white men, and whenever it was necessary to employ them as allies the first stipulation was that all should go mounted and that the ponies should be shod all around by the *gringo* blacksmith.

In Nebraska I kept my troop unshod, and performed all the ordinary garrison duties, and made marches for two years. The service was not severe, the wear not great, and the feet kept in perfect condition. The march to Indian Territory from Nebraska, in 1885, was made over fairly good marching roads, and soil of loose, sandy loam. All of my horses were shod only in front. In Colorado in 1886, the horses were shod all around as the troop could not be maintained in an efficient marching condition in that country without taking all possible precautions. At the present time, in Oklahoma, my horses are mostly barefooted, but I shall take good care that they are shod in front, and well shod, before the fall encampment.

I have horses that can march four miles an hour and at the rate of forty miles a day for five days, unshod, over this kind of country; there are others that cannot go five miles, no matter how much care I bestow or how often I subject them to the stone pounding process. Families of horses transmit to their progeny unsound, weak and thin walled feet. This peculiarity we notice in a great many of our fashionable draft strains, the blood and defects of which have been intermingled with our excellent native stock. This class of horses,

unfortunately, find their way into the cavalry service, causing no end of annoyance. Such horses must be shod when in garrison as well as when on the march.

The balancing of speedy horses by shoeing, the distribution of weight, and the knowledge to know just when to reduce it, are among the fine arts connected with horse management which only a few possess. If we observe a horse perform barefooted over a rocky road, and then notice the same horse act with a pair of well-fitting shoes, we see an ease and confidence in the latter that the unshod horse will never attain.

The secret then consists in removing all shoes whenever practicable, using light shoes, and learning all about the capacity and history of each horse in your care.

## MY RIDE AROUND BALTIMORE IN EIGHTEEN HUNDRED AND SIXTY-FOUR.

AFTER the battle of Trevillian's, June 12, 1864, at which HAMPTON drove SHERIDAN back from his attempted raid on Lynchburg to coöperate with HUNTER, who was moving down the valley with the same objective, General HAMPTON gave me permission to undertake an enterprise, which I had often discussed with him during the preceding sixty days.

My command, the Maryland Line, had been distributed to the infantry and cavalry, by the movement of LEE's army to the lines around Richmond, and I had retained command of the First Maryland Cavalry, about two hundred and fifty effective men, and the Baltimore Light Artillery (Second Maryland Artillery), with five inefficient guns.

The gallant Lieutenant Colonel, RIDGELY BROWN, commanding the cavalry, had been killed at the fight at the South Anna bridge on the first of June, and Captain GRIFFIN, with many of his men and two guns, had been captured at the affair at Yellow Tavern, May 11th, when JEB STUART lost his life charging with the Second Virginia Cavalry, to save GRIFFIN's guns.

In the battle of Trevillian's I had, during the second day, been made to do pretty much the duty of a brigade, for which my force was utterly inadequate, and the day after that engagement HAMPTON gave his consent that I should start on my long projected expedition.

This was to pass along the base of the Blue Ridge, through Rapahannock, Culpeper, Madison and Loudon counties, cross the Potomac at Muddy Branch, at a ford well known to many of the command, who were constantly passing and repassing it on their way to and from Maryland, surprise the Second Massachusetts Cavalry, generally known to us as the California Battalion, and then ride at speed to the Soldier's Home, where Mr. LINCOLN had his quarters, capture him and send him off with a trusty party back over the river to Richmond.

I was at the same time to divide the command into two parties—one to cut the railroad and telegraph between Baltimore and Washington, and then push across the river at White's Ford in Montgomery, and the other to move rapidly through Frederick, along the upper Potomac and cross at the Point of Rocks, or Shepherdstown, or wherever else opportunity offered.

In case of necessity both parties were to push north into Pennsylvania and escape through West Virginia, and even try to get to Canada by way of Niagara if hard pushed.

The total sacrifice of the command would have been well repaid by the capture of Mr. LINCOLN, but I did not consider escape utterly hopeless for the main body who were to go through northwestern Maryland.

The object was to create such confusion among the telegraph and railroad and commanding officers that the small detachment having Mr. LINCOLN in charge, would escape without attracting attention, while pursuit would be directed solely to us. This was my plan, however, and I set out to execute it.

I was shoeing my horses and getting up my dismounted men and putting everything in order for sharp and active work when General EARLY came along a few days after, at the head of his column, marching to head off HUNTER, then pushing up the valley to Lynchburg.

I knew General EARLY well and was attached to him by the comradeship of arms, by my respect for his intellect and by my warm love for his genuine, manly, true character, and I explained to him my projected movement. He said it would not do. "I'm going to Lynchburg," said he, "and as soon as I smash up Mr. HUNTER's little tea party I'm going to Washington myself. You'll put all that out, so you mustn't try it until I come back." He then directed me to move to Staunton and watch the valley until he got there. By the last of June he came back.

I was assigned to the cavalry brigade of General WILLIAM E. JONES, who had been killed at Mount Hope Church on HUNTER's advance. We began our movement down the valley from Staunton, RANSOM's cavalry division on the roads right and left of the Valley Pike and the infantry and artillery on the macadamized road between them.

Between Winchester and Martinsburg, EARLY divided his forces, directing JOHNSON's cavalry and RHODES' brigade of RAMSEUR's division, under EARLY himself, to the right to cut the Baltimore and Ohio railroad at Kearneysville and unite with McCausland's cavalry and BRECKINRIDGE's corps at Martinsburg; JOHNSON and Mc-

CAUSLAND to make a junction at Hainesville, behind Martinsburg, and thus cut off the retreat of SIGEL, who was at that place. I struck Leetown just after daylight, and found it held by General MULLIGAN with two thousand or three thousand infantry, five hundred cavalry and four guns, and just as the sun rose on the 3d of July I fired the first gun. MULLIGAN had a good position on a range of hills. The infantry of BRECKINRIDGE was half a day's march behind and I had about eight hundred half armed and badly disciplined mountaineers from southwest Virginia, who would fight like veterans when they pleased, but had no idea of permitting their own sweet wills to be controlled by any orders no matter from whom emanating. They were as brave, and as fearless, and as undisciplined, as the Highlanders, who followed CHARLES EDWARD to Culloden. However after several hours fighting, MULLIGAN withdrew, and the junction at Martinsburg being then unnecessary by reason of the escape of SIGEL, we moved towards Shepherdstown. Early on the 5th of July I crossed the Potomac with my command, and that night camped two and a half miles from Boonsboro. On the 6th I moved to Middletown, and on the 7th drove a small force that showed itself on the mountain between Middletown and Frederick, back to Frederick and pressing after it, arrived in front of the town about midday.

I knew every foot of the country—having been born and bred there—and I had the advantage also of an accurate knowledge of the condition of affairs in the town. I proposed to send one regiment down the Georgetown pike, into the south end of the town, another by the Reservoir road, into the north end, and press on in front from the Hagerstown road on the west side. This would have given me about one thousand prisoners, and much baggage, wagons and artillery. But my commanding officer, General RANSOM, thought I was over sanguine because it was my own place, and refused to allow the movement to be executed. He directed me to withdraw, under cover of night to the top of the mountain, until the infantry got up. Accordingly we lay all day the 8th in a drizzling rain on the mountain. At night I was directed to report in person to General EARLY, and found him on the roadside just south of Middletown, and he then informed me that he had received an order from General LEE by a special officer, Captain R. E. LEE, dispatched to him for the purpose. I was directed to march at daylight of the 9th to get a position to the north of Frederick and watch EARLY's left until I was satisfied that he was getting on all right, in the battle about to take place that day below Frederick, and then strike off across the country, cut

the railroads and telegraphs north of Baltimore, sweep rapidly around the city, cut the Baltimore and Ohio railroad between Washington and Baltimore, and push on rapidly so as to strike Point Lookout on the night of the 12th. Captain JOHN TAYLOR WOOD was to be there in an armed steamer which he was to run out of Wilmington. We were to capture the place. I was to take command of the prisoners there, some ten or twelve thousand, and march them up through lower Maryland to Washington, where General EARLY was to wait for me. The prisoners were to be armed and equipped from the arsenals and magazines of Washington, and thus reinforced, EARLY's campaign might be still further aggressive.

I told General EARLY that the march laid out for me was utterly impossible for man or horse to accomplish; it gave me four days, not *ninety-six* hours, to compass near three hundred miles, not counting for time lost in destroying bridges and railroads, but that I would do what was possible for men to do. Accordingly I started from Hagan's, on the Catoctin Mountains, about daylight on the morning of July 9, 1864, moved across to Worman's Mill, on the Old Liberty road, two miles north of Frederick, and waited until I was satisfied that EARLY's left flank was free. I was so careful as to communicate my orders only to my Assistant Adjutant General, Captain GEORGE W. BOOTH; Assistant Inspector General, Captain WILSON G. NICHOLAS, of my staff; and Colonel PETERS, commanding the Twenty-first Virginia, the ranking officer of the brigade. But this caution probably cost me time, as I made an unnecessary detour in arriving at my objective. I moved through Liberty, New Windsor, Westminster and Reisterstown, reaching the latter place about daylight of the 10th. While passing through the latter place a citizen in *dishabille* was very urgent to be satisfied that the troops were Confederates. At last conviction came upon his doubting mind to his great delight, which he gave expression to as follows: "Well, I told JAKE so; ain't I got it on him? He thought they would never come, but I always said they would." He was much gratified at his superior sagacity. Some hours after he came to me on the march, begging me to order a horse given back to him, which had been captured by some predatory Confederate, "not that he cared for the horse," he said, "but that JAKE would have such a rig on him. That his dear Confederates, so long expected and come at last, should take his horse!" He got it back.

We reached Cocksessville, on the Northern Central railroad, about nine o'clock Sunday, July 10th, and burned the bridges there. Here I detached Colonel HARRY GILMOR, under EARLY's instructions, with

a part of the First and Second Maryland Battalions, to strike the railroad at Gunpowder river, on the Philadelphia, Wilmington and Baltimore railroad, and destroy communication between Baltimore and the North. GILMOR accomplished this the next morning, Monday, the 11th of July, capturing several trains going north from Baltimore, and took prisoner Major General FRANKLIN, of the United States army. That night General FRANKLIN escaped from the guard who had him in charge, and who were utterly broken down by sixty hours' continuous ride.

I was occupied several hours at Cockeysville, and while there dispatched a faithful friend, Colonel JAMES C. CLARKE, into Baltimore to ascertain the condition of the troops and forces available for the defence of Washington.

EARLY had defeated WALLACE at Monocacy the day before and I knew that he was going to push into the capital if practicable. After getting an agreeable lunch at Hayfields, the seat of JOHN MERRYMAN, Esq., I left two young gentlemen there to get the report of my Baltimore scout and bring it to me as soon as possible. The charming society, the lovely girls, the balmy July air and the luxuriant verdure of Hayfields all combined to make the scene enchanting to soldiers who had been for months campaigning on the battle-scarred plains and valleys of Virginia.

From there I moved across the Green Spring Valley, in Baltimore county, and passing near the country residence of the then governor of Maryland, AUGUSTUS W. BRADFORD, I detailed Lieutenant BLACKISTONE, of the Maryland cavalry, to burn it in retaliation for the burning of the home of Governor LETCHER of Virginia, which had been destroyed by General HUNTER, at Lexington.

I bivouacked that night at "The Caves," the place of JOHN CARROLL, Esq. About midnight I received a message by the two couriers left at Hayfields, from Colonel CLARKE, whom I had sent into Baltimore. He informed me that all the available transportation of the Baltimore and Ohio railroad was concentrated at Locust Point; that the Nineteenth Corps of GRANT's army, under General EMORY, and part of the Sixth Corps were on transports in the stream, awaiting the arrival of General EMORY, to disembark and move to Washington. I at once sent this information to General EARLY by an officer and escort, and moved on.

Passing Owen's Mill early in the morning, we came across PAINTER's ice cream establishment which had a large supply of that luxury for the Baltimore market. As rations were scarce and issued with great irregularity, the ice cream was confiscated and is-



sued to the troops, many of whom had never seen anything like it. The mountaineers thought the "beer" was nice, but too cold, so they put it in their canteens to melt.

Pushing on across the Baltimore and Ohio railroad above Woodstock we passed by "Doughregan Manor," the seat of JOHN LEE CARROLL, Esq., since Governor of Maryland, with whom I had the pleasure of lunching. During the afternoon of that day, Monday, July 11th, I dispatched another message to General EARLY by a trusty courier, guided by the son of a friend, who undertook to show him the way across the country.

After the battle of the Monocacy between EARLY and LEW. WALLACE on Saturday, the 9th, the former had marched direct on Washington. His advance arrived before the fortifications of that place on the 11th, but owing to the heat of the weather and the broken down condition of the troops, the column was not closed up and in position before late in the evening of that day. "Under these circumstances," says General EARLY, "to have rushed my men blindly against the fortifications, without understanding the state of things, would have been more than folly." After consultation with Major Generals BRECKINRIDGE, RHODES, RAMSEUR and GORDON, he determined to make an assault on the enemy's works at daylight next morning, unless some information should be received before then, showing its impracticability, and he so informed these officers. "During the night a dispatch was received from General BRADLEY JOHNSON from near Baltimore, informing me that he had received information from a reliable source that two army corps had arrived from General GRANT's army and that his whole army was probably in motion. This caused me to delay the attack until I could examine the works again, and as soon as it was light enough to see, I rode to the front and found the parapets lined with troops. I had, therefore, reluctantly to give up all hopes of capturing Washington after I had arrived in sight of the dome of the capital and given the Federal authorities a terrible fright." [EARLY'S "Last Year of the War," page 59.]

The preservation of Washington from capture was owing to the energy and decision of JOHN GARRETT, Esq., President of the Baltimore and Ohio Railroad Company, more than to any merit of the military authorities.

MR. GARRETT'S railroad telegraph had kept him thoroughly informed as to the movements in western Maryland. He had perceived as early as the Thursday or Friday before, that EARLY had crossed the Potomac in force and that his real object was Washing-

ton. He had impressed his views personally upon President LINCOLN and the Secretary of War, MR. STANTON, and insisted on the necessity of fighting a battle at Frederick, in order to either gain time for troops to be got up for the defense of that city, or, failing that, that preparations could be made for its evacuation. Accordingly when the battle of Monocacy was fought on Saturday, and he found EARLY in full march southward, he immediately prepared the transportation on his road to receive the reinforcements which he was informed would arrive the next day at Locust Point. During Sunday the fleet of transports from Fortress Monroe, with the Nineteenth and Sixth Corps, began to arrive, but the officer in command refused to allow any troops to land until General EMORY had arrived. After striving in vain to start the disembarkation, Mr. GARRETT proceeded on a special engine to Washington and so impressed his views on the President and Secretary of War that he brought back with him an order to the senior officer of the troops on the transports to report to him until General EMORY should arrive.

During Sunday night and Monday, GARRETT, thus actually in command of two army corps, pressed the reinforcements on his cars and hurried them to Washington. EARLY saw their advance filing into the works on Monday afternoon, and the rest of them lining the parapets on Tuesday at daylight.

While these events were taking place, I was pressing in hot haste through Howard and Montgomery counties. I reached Triadelphia after nine o'clock that night, and unsaddled and fed my horses, and let the men get a little sleep. By twelve o'clock I received information that a large force of Federal cavalry had gone into camp since my arrival, at Brookville, only a few miles off. I at once got ready and started to attack them, but on reaching that point found they too had received information of their unwelcome neighbors and had left. Thence I moved to Beltsville, on the railroad between Baltimore and Washington.

There I found about one thousand cavalry of WILSON's division, which had been dismounted in a recent raid in lower Virginia, and sent north to recuperate. They were mounted on green horses and we drove them, after a short affair, down the road towards Bladensburg. It was now the morning of Tuesday, the 12th. I was due that night at Point Lookout, the extreme southeast point of Maryland, in St. Mary's county.

It was physically impossible for men to make the ride in the time designated. I determined, however, to come as near it as possible.

I sent an officer with a detachment to ride at speed through the country, impressing fresh horses all the way, and informing the people along the route that I was coming. They were unanimously my friends and I requested them to have their horses on the roadside so that I could exchange my broken down animals for their fresh ones, and thus borrow them for the occasion. During the preceding day, I had been taking horses by flankers on each side of my column, and kept a supply of fresh ones at the rear of each regiment. As soon as a man's horse broke down he fell out of the ranks, waited until the rear of his regiment came up, got a fresh horse, left his old one, and resumed his place.

By this means I was enabled to march at a trot, which, with a cavalry column, is impossible for any length of time without breaking down horses, and broken down horses speedily break down men. With fresh horses, however, I hoped to make a rapid march and get to Point Lookout early on the morning of the 13th.

After returning from the pursuit of WILSON's cavalry, I turned the head of the column toward Upper Marlboro, and had proceeded only a short way when I was overtaken by a courier from General EARLY. He brought me orders to report at once at headquarters, at Silver Spring, on the Seventh Street road. I moved down the Washington road to the Agricultural College, and thence along the line of the Federal pickets, marching all night, occasionally driving in a picket, and expecting every moment to be fired upon from the works, within range of which I was moving. I reported to General EARLY after midnight, and found the whole army in retreat. I was directed to close up the rear with JACKSON's cavalry brigade behind me. We reached Rockville during the day, where JACKSON was pushed by the Second Massachusetts Cavalry, who hung on to his rear, and rendered things very uncomfortable generally.

Finding matters getting disagreeable, I put in a squadron of the First Maryland, under Captain WILSON G. NICHOLAS, and Lieutenant THOMAS GREEN, and charged into the town, scattering our pursuers, who got out of the way with expedition. Their dismounted men, however, stuck to the houses and fences and poured in a galling fire as we passed. The dust was so thick that in the charge the men could not see the horses in front of them. The horses of NICHOLAS and GREEN were killed, and their riders wounded and captured. As soon as this loss was discovered, I made another charge and recaptured GREEN, but was unable to retake NICHOLAS, whom they had mounted on a spare horse, and run off the field.

During the rest of the 13th our pursuers treated us with more

respect. All night long we marched and stopped, and stopped and marched, with that terrible tedious delay and iteration so wearing to men and horses, and it was not until Thursday, the 14th, we reached Poolesville. Here we were obliged to stand and keep back the pursuit, while the infantry and artillery were passing over the Potomac. I got my artillery in position and deployed a strong skirmish line in front of Poolesville, and checked the enemy for several hours. At last, in the afternoon, a wide line of skirmishers could be seen stretching far beyond each flank of those we had been engaged with and which moved forward with a steady alignment, very unusual for dismounted cavalry. I sent word to General RANSON to come to my position, that the infantry had arrived, and that it was about time for cavalry to leave.

He soon joined me, and while we were looking through our glasses at the advancing line, where their cartridge boxes and canteens plainly showed—puff! puff! puff! went their fire all along the line. There was no mistaking the sound. The swish of the Minnie ball was so clear and so evident that it could not possibly come from carbines. We held on, nevertheless, making a great show with our artillery and repeatedly attempted to charge with cavalry, so that we delayed them until their supports could deploy. By this time, however, the enemy had become far advanced, and having been notified that everything, including my own baggage and ordnance train, had crossed, I withdrew comfortably and got into Virginia about sundown.

We had been marching, fighting and working from daylight July 9th, until sundown July 14th, four days and a half, or about one hundred and eight hours.

We had unsaddled only twice during that time, with a halt of from four to five hours each time, making nearly one hundred hours of marching. We had isolated Baltimore from the north, and cut off Washington from the United States, having made a circuit from Frederick to Cockeysville on the east, to Beltsville on the south, and through Rockville and Poolesville on the west. We had failed in the main object of our expedition, which was to release the prisoners at Point Lookout, convert them into a new army, capture Washington, establish our communications across the Potomac by Manassas Junction, with Gordonsville and Richmond, and by making this a new base of operations, force GRANT to let go his hold and come to the rescue of Pennsylvania.

The coöperative movement on Point Lookout failed, I have since understood, because the secret expedition of JOHN TAYLOR WOOD, by

sea from Wilmington, was spoken of on the streets of Richmond, the day before he was to have started from Wilmington. It was, therefore, countermanded, because the Confederate authorities well knew that the Federal general was so well served that he was accurately and promptly informed of everything as soon as it transpired in Richmond.

General EARLY's attack failed, as I have shown, because of the impossibility of getting to Washington before Monday afternoon. For before then, the energy and sagacity of JOHN GARRETT had hurled reinforcements from Locust Point to Washington, many of which had arrived before EARLY.

His trains were running from Locust Point on Sunday night, all day Monday and on Tuesday night, and the last of them had passed over the road not many hours before I reached it at Beltsville on Tuesday morning. The movement on Washington was a feint to draw GRANT from Richmond, to be converted into an attack if opportunity offered. I believed that GRANT had begun to move from Richmond, I knew that two of his corps were on the Patapsco, at Baltimore, and had information that others had moved up the Potomac. A young man, represented to me as reliable, well known to some of my people, had left Washington and Georgetown on Monday, and he reported to me that he had seen General GRANT in Washington on Sunday. I was therefore forced to believe that GRANT was in motion, and I so reported to General EARLY, first from near Baltimore, and afterwards when I joined him on the morning of the 13th. I do not to this day know the origin of the story of General GRANT's presence in Washington on Sunday. He may have been there or it may have been another general officer of that name. I have understood that there was another General GRANT in Washington. But be that as it may, it is clear that at no time after Monday morning, the 11th of July, could General EARLY have been justified in attacking the strong fortifications of Washington. His command consisted of the depleted divisions of GORDON, RHODES, BRECKINRIDGE and RAMSEUR, of about 8,500 muskets, the cavalry division of Major General ROBERT RANSOM, consisting of the brigades of JACKSON, JOHNSON, McCausland and Imboden, about 2,000 badly armed, worse equipped and undisciplined mounted men, and three battalions of artillery of about forty guns and 1,000 men; making a total effective force of about 11,500 men of all arms. Washington could only have been taken by surprise, and it was impossible to surprise it, when General GRANT at City Point was nearer to it than General EARLY at Sharpsburg.

Sharpsburg is four marches from Washington. It might be made in three forced marches. The sagacity of Mr. GARRETT's recommendation that a battle should be fought at Frederick, even if it were lost, will be appreciated. It would have been nearly equivalent to one whole day's march, and extended EARLY's time from three or four to four or five days.

On the other hand, transports from City Point could reach Baltimore on the Patapsco, or Washington on the Potomac in twelve hours. They could have transported General GRANT's whole army from the James to the Federal capital before General EARLY could possibly have marched from where he was forced to cross the Potomac. In this possibility lay the strength and weakness of the strategy. If GRANT were so inclined he could have withdrawn his whole force, or such part of it as to have paralyzed his movements on the James, and the threat to Washington would make him contemplate the necessity of such a move. If EARLY's movement had induced him so to act, LEE would have been relieved, and the South allowed another year for a breathing spell. If it did not so influence him, we were no worse off than when the attempt was made.

I have always considered the movement one the audacity of which was its safety, and no higher military skill was displayed on either side, than that shown by General EARLY in this daring attempt to surprise the capital of his enemy with so small a force.

BRADLEY T. JOHNSON.

## LETTERS ON CAVALRY, BY PRINCE KRAFT ZU HOHEN- LOHE-INGELFINGEN.

TRANSLATED BY COLONEL R. P. HUGHES,  
INSPECTOR GENERAL, U. S. A.

### TWELFTH LETTER.—HOW IS THE CAVALRY PREPARED TO MEET THE REQUIREMENTS OF THE PRESENT TIME?

WHEN I referred in my last letter to the difficulties which the cavalry will have to overcome in order to satisfy all that is demanded of it, I did not wish to be understood as intimating that those requirements had been carried too far.

The essentials and general requirements can be enunciated in a few comprehensive words.

A squadron must be able to traverse more than four miles at the rapid gaits (trot and gallop) and still be in condition to enter upon and carry through an attack.

Select horses must be able to endure great exertion—to travel from fifty to sixty miles in a day, in order to accomplish the distant patrol duties. The leaders of these patrols (officers) must be so thoroughly instructed in tactics, both theoretically and practically, that they will be able to make such reports regarding the enemy and the country assigned to them, as will serve for foundations upon which the commanding general may base his dispositions.

The great cavalry masses must be in condition to march twenty-five to thirty miles per day for three successive days. Upon a long and continuous march the distance marched in a day would necessarily be shortened, and in case great exertions have to be demanded on any one day, then the next day should be either one of entire rest or one of but little exertion.

In such extraordinary exertions the fitness for action must not be sacrificed either in isolated squadrons or in the command generally. These demands are not excessive. The cavalry can and will respond to them if required to do so, and if the necessary means are given it.

I have likewise invited attention to reconnoissance rides in time of war, in which individual officers have ridden nearly ninety miles in one day and brought in most important information. I could cite many instances where officers at simple maneuvers, have been in the saddle continuously for sixteen hours without rest or food, and have still been fresh and capable of giving a sound opinion, because they carried enthusiasm into their work.

So far as relates to the instruction of the leaders of cavalry patrols (officers) there is nothing more to be desired. The war minister not only makes the annual cavalry "exercise rides" separate and distinct from the "general staff rides," but as this might not be sufficient and as it would only improve the instructors, we see once or twice each year, at such times as the usual course of instruction will admit of it, the collective officers of regiments making rides of a few days at their own expense, in order to gain by such journeys a better insight into the duties and purposes of officers' patrols. A regiment which had in no way neglected the other branches of instruction, but which was excellent in everything, reached such a degree of perfection in reconnoissance service, that in the autumnal maneuvers all the non-commissioned officers, and many of the men, were able to accompany their reports with very intelligent saddle sketches.

Only one question is never answered in time of peace, viz: Can a division of cavalry march thirty miles *per diem* for three successive days without sacrificing its actual fitness for action? This demand is mandatory upon us. In war it must be satisfied. When an army is set in motion across the territorial boundary line, and sends its cavalry to the front, that cavalry must be able in three days to gain a distance of from two to three days' marches on the army. To do this the cavalry must march from twenty-five to thirty miles a day, while the army follows at the rate of from eleven to thirteen miles a day. (In the advance upon Chalons, marches of twenty-five miles per day were actually made by an entire division of cavalry.)

It is only after gaining this distance in advance of the army, that the cavalry can reduce the length of its marches to correspond with the marches of the main body. It will then—if it has not done so before—come in contact with the enemy and must be held in good condition for action. It must not have lost any of its fitness for service during these marches.

This is the only point upon which our cavalry has no instruction. Experience and practice are required to admit of the execution of a



forced march of three days by great masses with the greatest possible economy in horse-flesh, especially when it is a campaign march against a real enemy, or with an underlying idea of actual war. There are innumerable things which require consideration in such operations, by the observance of which the troops will be spared fatigue and maintained in better condition for great exertions.

They begin with the designation of the rendezvous. The smaller the number of troops at any one rendezvous the less the exertion of the troops in assembling. It is decided after examining the condition of the parallel roads whether the whole division must be given the same rendezvous or each brigade shall be given its own. Then comes the assembling at the designated places. Nothing is more tiresome to the troops than moving hither and thither before dismounting at the place of assembly. It often happens that a squadron reports at its special rendezvous, then it goes to that of the regiment, then to the brigade parade, and finally the brigade to the point of assembly of the division. In this way very much time is lost which must be taken from the rest of the troops, and which can be avoided by practising the smallest detachments in quickly finding their proper places. In 1843 General WRANGEL pronounced against such squandering of time and strength in stringent orders; but we see the same faults still repeated because the troops are not given the necessary practice. Practical experience in giving short, sharp orders from the saddle, in which nothing is forgotten, and concerning which no doubts can arise, is also very necessary. Scouts should receive practical instruction in their duties in order to enable them to form fairly correct estimates of the distances they may be in front of their commands.

When the division begins its advance it is necessary, above all things, that the horses should not fret, and that the gait be moderate, if a greater distance than thirty miles is to be marched. Good order and keeping well closed are of the greatest importance. As stoppages and delays are unavoidable in a long column, the regulation distances must not be painfully adhered to, else the alternate rushes and shocks will unnecessarily excite and exhaust the horses.

Much exercise and practice is necessary to get the great mass to trot quietly. It must be insisted upon that each squadron shall keep a distance between it and the next preceding, which distance must be variable, in order that disturbances in the gait may not be generated towards the rear of column; and further, that the heads of squadrons must adhere more to the prescribed gait than to the regulation distance from the preceding squadrons. If, however, this

distance should become exceptionally great, then, the custom of the service must authorize the chief of squadron to send forward individual mounted men in order that the connection may not be lost and that the advancing troops may not take a wrong direction.

The changing of the gaits must be done by the watch. In 1866, I marched from Poysdorff, in front of Vienna, via Prague, to Berlin with a considerable mass of artillery and changed the gaits in such a manner that, for each half hour we moved at a walk, we trotted two miles and one-third; on the first day, however, I marched a quarter of an hour at a walk and then trotted about two thousand yards. In this way we marched about four and seven-tenths miles per hour. If the march exceeded eighteen miles, I made, about midway in the march for that day, a trot of four and seven-tenths miles instead of half that distance, as was our custom, and after this trot a shorter calming walk, which was followed by a halt of half an hour. Thus the eighteen miles were accomplished in four hours. Horses and men were thus kept fresh and the horses grew fat.

It must not be overlooked that the cavalry arrive at a halting place by troops, and they should be mounted and dismounted by squadrons after forming; and great care should be exercised that the horses are not tired by the men remaining too long in the saddle at a halt. It is a great mistake to let the whole division mount at the same time, for in marching off it will be more than thirty minutes before the last squadron enters the column of march.

After the instructive experience obtained in the long march from Vienna to Berlin, I should arrange a forced march of thirty-one miles as follows: I would start with a half-hour walk, then a two and one-third mile trot, another second walk of an hour, followed by a second trot of four and seven-tenths miles; then a third walk of half an hour and a third trot of two and one-third miles, then a fourth walk of half an hour. There should be a rest of half an hour at some suitable time and favorable place during this part of the march. We have thus accomplished about three-fifths of the march. A rest of from two to three hours should now be given, during which the horses should be watered and fed and the men do their cooking. The accomplishment of the remaining two-fifths of the day's work will require three hours. In this way a division could march thirty-one miles in ten hours.

In the various conditions of the ground which one meets in such long marches as thirty-one miles, ample opportunity will offer to allow the division to pass once each day, from the formation in

march to the formation in action, be it against a marked enemy or a supposed enemy.

As the field maneuvers of the cavalry divisions are now conducted, the moving of the division in three lines is frequently practised. I have seen maneuvers which lasted from four to six hours. During this time at least from four to six cavalry battles were represented upon a greater or less field of operations. But they all originated at the place of rendezvous. I have never seen the arrangements such, that the difficulty had to be overcome which presents itself to the cavalry when it has to pass from the marching formation into the formation for action in the face of the enemy. This difficulty is greatly increased if the cavalry takes several parallel roads. In times of actual hostility this will generally be the case. The instances in which the opposing cavalry forces shall stand facing one another in their places of rendezvous and make the attack from there, will be very rare. The cases in which they encounter one another while in column of march will be by far the most frequent, especially if both armies make the proper use of their cavalry masses and send them far in advance to reconnoiter and cover the front. Then that cavalry will gain the advantage, which best understands the quickest way to deploy from the column of march into the three-line formation for action. And yet such exercises are exceedingly rare. According to my information, General RADOWITZ was the first person to suggest the idea that the cavalry should be so exercised, and that it could be carried across country in formation for action. His suggestion produced no results in his time (he died in 1853). In later times the cavalry of the Twelfth Corps has been maneuvered in that way. I am informed by excellent authority that the experience was very valuable. But what is most remarkable is that the cost of the damages done in exercising in this way did not amount to one-third the cost of hiring a field for maneuvers. Yet for reasons unknown to me, this kind of instruction has never been repeated with us. The French, however, maneuver their cavalry in this manner. The divisions taking part in the operations march toward one another from long distances, and after a few days the action is represented by their rushing upon one another.

In order to give a practical expression to my ideas regarding the needed instruction of the cavalry through an example, let the following be the arrangement of a projected cavalry operation, as it probably should be in order to secure the results sought.

A cavalry division (say the five regiments of the Sixth Corps and one regiment of the Fifth Corps,) assembles in the vicinity of

Krappitz in upper Silesia and is required to reach the vicinity of Liegnitz in three days. The first two days it is permitted to operate upon any tactical and strategical idea, the only condition prescribed being that on the second day it must reach the vicinity of Lissa on the Weistritz, to the west of Breslau. I think if I were in the place of the division commander I should make the march of the first day on parallel roads, crossing the Neisse at Michelau and Loewen, with a supposed enemy and a concentration of the parallel columns for concerted action at some designated point during the march.

The second day I should advance from the Neisse to the Weistritz, with the division united on one road, against an enemy indicated by stakes, possibly introducing en route a representation of an action (attack of all three lines). For the third day, a general idea or plan must give the division the necessary instruction for its advance against an enemy who is known to have reached Liegnitz and may be expected from the direction of Sprottau on the Bober. The enemy being another division (of the Third Corps), which could receive, in like manner, the following instruction; the first two days of their march to reach Sprottau from Kottbus or from Guben, and the third day to operate from there against the division advancing from Lissa.

The third day's operations must end with a collision of the two divisions. This day's work must be succeeded by a day of rest. Then two days could be employed in field maneuvers in the district between Liegnitz and Hagenau; the two divisions to attack one another or execute such maneuvers as may be necessary to firmly fix the elementary principles of the attack in three lines in the minds of those participating, if the previous operations had shown that such instruction was needed.

After another day of rest the two divisions separate, the first day each again acting upon some general strategical idea, and they finally reach the places from which they started, by field maneuvers somewhat similar to those practised in coming.

I would not confine this instruction to the elementary exercises of the division in the tactics of three lines, as was the case upon the single occasion when we attempted a long march with a cavalry division, for it is my opinion that numerous elementary ideas must be firmly established by ocular demonstration in such operations, and that mere theoretical demonstration is not sufficient. But I believe that there is more time devoted to drills, as now conducted, than is absolutely necessary.

I hold that the assembling and exercising of the division at one place, as a unit, is a necessity, in order that the division may be inspected by the higher officers. This is not possible during forced marches without, in some degree, trammeling the action of the division commander by designating a certain rendezvous, which would take from the marches their actual war character; and by making the inspections in the course of the march the work would be excessive. An inspection by the higher officers is very necessary, for what is not inspected is neglected. Anyone who has been a soldier knows that.

According to my plan sufficient time would be given for the inspection and presence of the commanders, especially on the third day's march, at the collision of the two divisions and then during the two day's field exercises between Liegnitz and Hagenau. On these two days as well as during the six days of marching, opportunity could be found for the division commander to unite the divisions in the elementary maneuvers of a general action.

In this way the cavalry division which started from Krappitz after six days of hard marching, two days of field operations, two days of rest, in all ten days, would have again reached Krappitz and would be distributed to its garrisons.

It may be replied that the horses cannot make forced marches of thirty miles per day for three successive days. When a horse is sound in wind and has been hardened by work, he must be able to accomplish this service. As I have previously stated, seven hours are required for the march, four before and three after the noon halt. Adding to this an hour and a half in going to and coming from the night's quarters, we find that the horses have had eight and one-half hours' work under the saddle. If all useless waiting in the saddle is taken up in maneuvering, the horses will not be worked over nine hours, and that is not too much, even if eighteen miles are ridden at a trot, for the horses are fatigued much more by carrying weight for a long time than by the gait. Ten hours' work per day for three successive days will not ruin horses; many farm horses must do more than this through the whole harvest season. At least, such ten hours' work will try the horses less than often occurs in maneuvers, field exercises and in war, when they are kept under the saddle, without food, twelve to sixteen hours daily, and most of the time under the rider at a halt.

Another question is, how the time is to be found for such operations. Far be it from me to wish that the cavalry should not take part in the infantry maneuvers. On the contrary, I think it is very

desirable that the most intimate relations should exist between the cavalry and infantry. And to this end it should be practically demonstrated once each year that the cavalry only exists for the infantry, and that the deficiencies and necessities of the latter must be completed and supplied by the former.

I think it is very desirable that *all* the cavalry should take part in the annual maneuvers of the infantry, and begin their own special exercises after the infantry reserves have been dismissed.

According to the foregoing plan the cavalry maneuvers would require ten days' time. That would result in a delay in dismissing the cavalry of twelve days (including one day for rest before and after) if, as in the example, the maneuvers should cease at Krappitz; but in other cases these twelve days might be extended to a fortnight or to three weeks, and it might occur that certain squadrons would not reach their garrisons until the middle of October.

I find no evil in this. The recruits are brought in about the 3d, 4th, or 5th of November, and the men would not have exceeded their three years' required service if detained until the middle of October. The period of service of the men destined for the reserve, and of the horses to be culled from the ranks, would thus be lengthened by a few weeks, and the accounts and expenditures for the cavalry proportionally increased. But could not a corresponding economy be made somewhere else? If not, then, it should be borne, and this additional cost would not be so excessive that it would startle any one when the necessity of the measure is appreciated.

As for the additional expense, it would amount at most to the sum necessary to retain for three weeks longer in the service about one hundred and eighty men and seventy horses for each regiment of cavalry.

Another question might arise, whether the cavalry can stand such exertions with the present allowance of forage. Would it not be allowable to issue the war-ration for the period of such maneuvers?

Taking everything into consideration I have arrived at the comforting conclusion that our cavalry is still in condition to meet the additional demands that the army is compelled to make on it by reason of the great improvement in fire-arms.

## DRILL REGULATIONS FOR CAVALRY, UNITED STATES ARMY.

### MOVEMENTS BY FOURS.

Any number of men may be united for this instruction.

#### *To Count Fours.*

183. Being in line the instructor commands: 1. *Count*, 2. **FOURS**.

At the command *fours*, the recruits commencing on the right count *one, two, three, four*, and so on to the left.

#### *To March by the Flank in Column of Fours.*

184. Being in line, the instructor commands: 1. *Fours right (or left)*, 2. **MARCH**.

Each four wheels to the right on a fixed pivot, the pivot man turning strictly in his place; the man on the marching flank advances the left shoulder, maintains the full step and conducts the marching flank so as to march over an arc of a circle with a radius equal to the front of the four; the men keep their heads to the front, conform to the movement of the marching flank, shorten their steps according to their distance from it and preserve their intervals from the pivot.

Upon the completion of the wheel, the guide of the leading four marches on a line parallel to the former front of the squad; the men of each four take the full step, dress toward the marching flank and maintain wheeling distance.

185. To form column of fours and halt, the instructor commands: 1. *Fours right (or left)*, 2. **MARCH**, 3. *Squad*, 4. **HALT**.

The command halt is given the instant the fours complete the wheel; each four dresses toward the marching flank.

186. In all wheelings by fours the forward march is taken up on the completion of the movement unless the command halt be given.

In column of fours, each four dresses toward the side of the guide; the guide of the leading four becomes the guide of the column. *These rules are general.*

188. To change the guide, the instructor commands: *Guide right (or left)*.

*To Change Direction in Column of Fours.*

189. Being in march, the instructor commands: 1. *Column right (or left)*, 2. MARCH.

At the command *march*, the leading four wheels to the right on a movable pivot; executed as in paragraph 184, except that the pivot man shortens his step to ten inches in quick time and twelve inches in double time and gains ground forward in describing a small curve, so as to clear the wheeling point; the wheel being completed the four takes the full step; the other fours move forward and wheel on the same ground.

*Column half right (or left)* is similarly executed.

To put the column of fours in march and change direction at the same time the instructor commands: 1. *Forward*, 2. *Guide right (or left)*, 3. *Column right (or left)*, 4. MARCH.

*To March in Column of Fours to the Front.*

190. Being in line, the instructor commands: 1. *Right (or left) forward*, 2. *Fours right (or left)*, 3. MARCH.

At the command *march*, the right four marches straight to the front, shortening the first three or four steps; the other fours wheel to the right on a fixed pivot; the second four when its wheel is two-thirds completed, wheels to the left on a movable pivot, and follows the first four; the other fours having wheeled to the right move forward and wheel to the left on a movable pivot on the same ground as the second.

191. To march the column of fours to the rear, the instructor commands: 1. *Fours right (or left) about*, 2. MARCH, 3. *Guide right (or left)*.

The fours wheel about on a fixed pivot.

192. To face the line to the rear, and to march it to the rear, the instructor commands: 1. *Fours right (or left) about*, 2. MARCH, 3. *Squad*, 4. HALT, or 3. *Guide (right, left or centre)*.

At the command *march*, the fours wheel about on a fixed pivot.

193. The movements for forming line from column of fours, are executed by the same commands and according to the principles explained in the Preparatory Lessons for the Troop.

*To Open and Close Files.*

194. Being in line at a halt, to take intervals of three yards between files, the instructor commands: 1. *Open files*, 2. *To the right (or left)*, 3. MARCH.



At the command *march*, the left file, which is the base, stands fast; the other files face to the right and move off, each facing to the front and halting so as to find himself three yards from the man on his left.

If a greater or less interval be required the interval will be added to the second command.

195. To close files, the instructor commands: 1. *Close files*, 2. *To the right (or left)*, 3. *MARCH*.

At the command *march*, the right man who is the base, stands fast; the other men face to the right and move off, each facing to the front and halting so as to find himself six inches from the man on his right.

*To Take Distances to the Front, and to Re-form Line.*

196. Being in line, the instructor commands: 1. *Front take distance*, 2. *MARCH*, 3. *Squad*, 4. *HALT*.

At the command *march*, No. 1 of each four marches straight to the front; No. 2 of each four marches straight to the front when No. 1 has a distance of three yards; No. 3 and No. 4 move off in succession in like manner; the command halt is given when Nos. 4 have attained their proper distances.

To form line again, the instructor commands: 1. *Form*, 2, *RANK*.

At the command *rank*, No. 1 stands fast; Nos. 2, 3 and 4 move up into their intervals between Nos. 1 and halt.

# MANUAL OF THE SABER AND SABER EXERCISE.

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## FENCING EXERCISE.

250. The fencing exercise develops the agility, intelligence and esprit of the trooper, as well as his adroitness and confidence in the use of the saber.

When practicable, masks, wooden sabers, plastrons and right hand gloves are provided; the sabers to be of hickory, ash, beech or other tough wood, resembling in shape and length the regulation saber, and to have sheet iron or leather guards. When the wooden sabers are not provided, the single stick is used; it is a stick three and one-half feet long, three-quarters to one inch in diameter at the hilt end, and somewhat tapered toward the point. A disk of sheet iron or stiff leather about five or six inches in diameter should be fastened six inches from the hilt to protect the hand. To give the

single stick the proper balance a hole may be bored lengthwise in the gripe, into which is put the proper amount of shot or molten lead.

A target or dummy is made by firmly setting in the ground a post about five and one-half feet high, about which is placed a canvas or leather bag about three feet long, and which, when stuffed with hay or other material will be about twenty inches in diameter. The center of the top will be sufficiently indicative for the head cuts; a ring painted around it about ten inches from the top will indicate the height of the shoulder cuts, and another ring about two feet from the top will indicate the waist; against this latter the thrusts should be directed.

The movements are first taught without the saber, in connection with the setting up exercise, the hands being placed as in the eighth exercise.

The instruction may be given with the saber in the left hand, or with the left foot in front.

Frequent short rests should be given.

251. In all movements the feet are at a right angle, with the right toe pointing and the eyes looking to the front. *This rule is general.*

252. The squad being formed as in paragraph 194 or 196, sabers at a carry, the instructor cautions *fencing exercise*, and commands:

GUARD.

Half face to the left, placing the right heel in front of and against the left, the weight on the left leg; unhook the scabbard with the left hand and grasp it between the rings, back of the hand outward, turn the hand inward and place the left forearm against the small of the back. (Two.) Advance the right foot fifteen inches, both knees well bent, so as to be directly over the feet; body erect and bearing equally on both legs, at the same time lower the saber to the front, point about the height of the eye, edge to the right and downward, hand in tierce and at the height of the elbow, arm about half extended, elbow in front of the body, thumb extended along the back of the gripe, little finger joined to the others, right toe pointing toward the adversary.

If armed with the wooden saber or single stick, at the command guard the left fore arm is placed behind the back, hand closed.

1. *Carry*, 2. **SABER.**

Resume the carry faced to the front. If without arms, the position of the soldier is resumed by the commands: 1. *Squad*, 2. **ATTENTION.**

ADVANCE.

253. Raise slightly and advance quickly the right foot fifteen inches, follow quickly with the left the same distance.

RETIRE.

254. Raise slightly and move quickly the left foot fifteen inches to the rear, follow quickly with the right foot the same distance.

FRONT PASSADE.

255. Advance quickly the left foot fifteen inches to the front of the right, then quickly advance the right foot fifteen inches in front of the left.

REAR PASSADE.

256. Carry the right foot quickly fifteen inches to the rear, then carry quickly the left foot fifteen inches in rear of the right.

RIGHT VOLT.

257. Face to the right, turning on the ball of the right foot; at the same time carry the left foot quickly to its position in rear.

LEFT VOLT.

258. Face to the left, turning on the ball of the right foot; at the same time carry the left foot quickly to its position in rear.

LEFT TRAVERSE.

259. Carry the left foot quickly fifteen inches to the left and about three inches to the front, follow with the right foot about ten inches to the left and about three inches to the front.

RIGHT TRAVERSE.

260. Carry the right foot quickly about ten inches to the right and three inches to the front; follow with the left foot about fifteen inches to the right and three inches to the front.

In the traverses the troopers move on a circle around the point of contact of the blades when engaged.

LUNGE.

261. Advance the right foot quickly about fifteen inches, the right leg from knee to instep vertical, the left leg extended, the left foot flat on the ground, body erect, chest thrown out and head slightly thrown back.

At the command *guard*, the trooper brings back the right foot.

The object of the lunge is to give a further reach to the saber and is made at the instant of delivering the cut or thrust in the attack or ripost.

262. Being at the guard: 1. *Change*, 2. *GUARD*.

Plant the left foot fifteen inches in front of the right and take the position of guard, left foot in front; change the saber into the left hand.

The guard is resumed with the right foot in advance by the command *change guard*.

*The Engagements.*

263. To engage is to cross sabers, edge against edge, about eight to twelve inches from the point. The engagement is *tierce* when the back of the hand is up, the edge of the blade to the right and the adversary's blade is kept to the right. The engagement inversely is *quarte* when the back of the hand is down, the edge of the blade to the left and the adversary's blade is kept to the left. The engagement in *tierce* is generally the better because the more natural and easier position to hold the saber.

The *hanging* or *high engagement* is when the saber hand is as high as and in front of the right shoulder, the back of the hand to the left, the edge of the blade toward the front, the point about as high as the waist.

Being at the guard,

1. *Tierce*, 2. ENGAGE.

1. *Quarte*, 2. ENGAGE.

1. *High*, 2. ENGAGE.

264. All saber movements not specially excepted are executed from the position of guard. The command *guard* will terminate the movement.

265. The *cuts* are made principally by the movements of the wrist, keeping the hand in front of the body near the line of defense (which is an imaginary vertical line through the center of the body), otherwise the person will be exposed to attack and unable to recover in time to make a successful parry or counter attack.

There are three principal cuts, *i. e.*, *front*, *right* and *left*. The right and left cuts are subject to any number of variations by the instructor designating the particular part or member of the body against which the blow is to be directed, *e. g.*, *right* (or *left*) *cheek*, *side*, *thigh*, *leg*, etc.

1. FRONT CUT, 2. GUARD.

266. Raise quickly the point until the blade is nearly vertical, edge to the front, without any marked movement of the forearm. (2) Cut to the front and downward, as at the head of an adversary, at the same time extending the arm and left leg.

The cuts are made lightly. When they are made against an adversary the point is usually carried over the point of the adversary's saber.

1. *Against right shoulder (or side, etc.)*, 2. RIGHT CUT, 3. GUARD.

267. Move the point quickly about eighteen to twenty-four inches to the left of the line of defence. (2) Move the point and cut quickly to the right as against the particular part of the body of the adversary indicated by the instructor, at the same time extending the right arm and left leg, throwing the weight on the right leg.

1. *Against left shoulder (or side, etc.)*, 2. LEFT CUT, 3. GUARD.

268. Move the point quickly about eighteen to twenty-four inches to the right of the line of defence. (2) Move the point and cut quickly to the left as against the particular part of the body indicated by the instructor, at the same time extending the right arm and left leg, and throwing the weight on the right leg.

269. The lunge may be combined with the cuts and thrusts. The trooper is instructed that at the command *two*, he executes the lunge at the same instant he makes the cut or thrust; if executed without the numbers, then at the command *cut, thrust*, etc.

#### *The Thrust.*

270. The thrust is an attack with the point of the saber and is usually made by lowering the point below the blade of the adversary.

The thrust is advised as preferred to the cut, especially mounted; the forward movement of the horse gives it force and it does not derange the position.

1. TIERCE THRUST, 2. GUARD.

271. Raise the hand to the height of the neck and in front of the right shoulder, edge of the blade up, point to the front and as high as the breast. (2) Thrust to the front as at the breast, etc., of an adversary, raising the hand as high as the forehead and extending the arm and left leg, weight on the right leg.

1. QUARTE THRUST, 2. GUARD.

272. Raise the hand in quarte in front of and as high as the shoulder, edge of the blade to the left, point as high as the breast. (2) Thrust to the front as at the breast, etc., of an adversary at the same time raising the hand as high as the forehead and extending the arm and left leg, weight on the right leg.

#### *The Parries.*

273. The parry wards off the blow of the adversary and should be made without disturbing the equilibrium of the body, and only so far as may be necessary to cover the person, the point being moved as little as possible to accomplish it.

They are *single, double*, etc., according to the number, and are the same as in the saber exercise. (Pars. 244, 245 and 246).

In the parries the position of the hand and point vary according to the direction of the blow, and so move as to receive the adversary's attack on the *fort* (strong) of the blade, which is the half of the blade near the hilt; the *feible* is the half near the point. The strength of the parry diminishes with the distance from the hilt.

#### *The Feints.*

274. The feints are intentional movements made to deceive an adversary by threatening a cut or thrust different from that intended. They are *simple, double*, etc., according to the number of movements.

The feints by cuts are usually made by raising the blade just sufficient to pass over the adversary's point; and by thrusts usually under the blade.

The feint should be so well made that it will be mistaken for the intended blow, and thus throw the adversary off his guard, exposing him to attack at another point at which the lunge is quickly made.

275. The *ripost* is the counter attack, made after having parried the adversary's attack.

*Withdrawing the leg* is done by moving the right leg behind the left without moving the latter. This movement carries the body beyond the reach of the adversary, and enables a ripost with a head hit, or hit on the wrist, according as the attack was <sup>above</sup> or <sup>below</sup> the forearm. *below above*

276. The troopers after having been taught the motions, first slowly, then rapidly, by the numbers, are formed in two ranks facing each other, with intervals of about two or three yards between troopers. One rank is designated No. 1, the other No. 2.

277. The troopers being first in position, the instructor commands: PROVE DISTANCE.

Extend the saber to the front and raise the saber, edge to the right and take distance from the adversary, the point of the saber just touching the adversary's hilt.

278. The instructor commands: 1. GUARD, 2. TIERCE (OR QUARTE OR HIGH), 3. ENGAGE (Par. 263). He then indicates the movements for attack by No. 1, and the corresponding parries for defence by No. 2.

This attack is repeated several times, and then No. 2 is cautioned to make the same attack, and No. 1 the defence; and so on with the various attacks and defences. The trooper lunges at the instant of attack.

Examples: No. 1, Right cut at leg; No. 2, Right low parry, (lower the point and hand) and commands: 1. *Assault*, 2. *GUARD*.

No. 1.	No. 2.
<i>Assault.</i>	<i>Parry.</i>
Front cut.	Head parry.
Right shoulder, right cut.	Right parry (raise the point and hand).
Right side, right cut.	Right parry.
Right cheek, right cut.	Head parry (hand in front of and as high as the right shoulder, point higher than the head).
Left cheek, left cut.	Head parry (hand in front of and a little higher than the head, point below the shoulder).
Left side, left cut.	Left parry.

The simple attacks and parries being familiarized, the feints are explained and combined with the attacks, as:

No. 1, Feint right cut at leg, and attack right cheek. No. 2, Parry low right and right head.

After the troopers have become familiar with the parries, the instructor will indicate the feint and attack only, the defence will make corresponding parries without indication.

The steps will be combined with the attack, *e. g.*, when No. 1 advances, No. 2 retires, etc.

The instructor explains the ripost and familiarizes them first with the simple attack and simple ripost, and carries them on up through the double, etc., attacks and riposts.

#### *Mounted Fencing.*

279. This exercise is intended to more nearly complete the education of the horse and trooper, and to cultivate in them the presence of mind and individuality to more successfully cope with the enemy during the melee into which the charge finally resolves itself.

The instructor varies the fencing exercises from time to time with some movements on the track at all the gaits, in order to relieve the monotony to those not immediately engaged, or to quiet the horses.

The squads are formed at opposite ends of the hall, the instructor indicates one rank, No. 1, the other No. 2, then gives in detail the

attack, ripost and parries, first, when the troopers meet each other by the right, then by the left, and finally the attack and defence from the rear.

The engagement is fierce when the troopers meet with the adversary to the right and is *quarte* when on the left. Each couple return to the left of their rank at the command *next*.

The exercise will be had at a walk, trot and gallop.

The troopers are also formed into two ranks with intervals facing each other, as explained when dismounted, Par. 277, and are exercised.

280. In actual combat the trooper will put his enemy at a disadvantage by striking the enemy's horse's head, by sabering his bridle hand or reins; or by attacking him on his *right* rear.

The greatest attention should at all times be given to maintaining the proper position and equilibrium of the body from which, by too great an exertion in delivering a cut or thrust the horseman may be suddenly thrown, thereby losing the advantage of his skill in the use of his saber because of the effort he must make to regain his seat.

In delivering a forward thrust very little force is necessary while the horse is in quick motion, as the extension of the arm with a good direction of the point will be sufficient. The forcing of the coup can be resorted to, when very near and closely pressed upon by an adversary by suddenly extending the arm and directing the edge across his face, or wherever an opening is given, being careful to guard against allowing an opening for the adversary.

When sufficient space is afforded for choosing the point of attack, endeavor to take advantage of it; if this advantage cannot be taken, endeavor to prevent the adversary from attacking on the left rear; to meet this attack halt suddenly to allow the adversary to pass by, or bear over as closely to him as possible, or turn quickly to the right about and meet him.

When meeting an adversary to the left front, turn sharply to the left or left about on your own ground which brings his left on your right, with the saber arm free.

When pursued, endeavor to keep the adversary to the right rear and you can keep him at a distance by the rear cut and the thrust.

#### SCHOOL OF THE TROOPER.

281. The object of this school is to teach individual horsemanship and the ready use of arms on horseback.

282. Military equitation consists in the proper application of the aids in horsemanship, and, in a settled balance of the body which



enables the trooper to preserve a correct and firm seat in every variety of movement.

A thorough knowledge of military equitation is indispensable to the trooper that he may have the full freedom of his hand to use his weapons, and to enable him to perform his duties with readiness on all occasions, either singly or in rank.

283. The progression indicated in this school may be modified at the discretion of the officer superintending the instruction, care being taken to develop the confidence of the recruit by a progress suited to his capacity, and which will exempt him as far as possible from falls or other accidents.

The recruit will be taught that his own disposition or temper is usually communicated to and reacts upon the horse and therefore it is to their mutual interest to preserve calmness.

During the first few lessons the instructor will devote his attention chiefly to giving to the recruits the proper seat and carriage and to making them self-confident on horseback; he will quietly and patiently correct the faults of each individual as they occur, frequently passing from one to another, and will only exact by degrees the correct execution of his teachings; these understood and confidence imparted, the positions and motions will then be rigidly exacted.

The instructor may dismount if he can in that way the better teach the positions. At all times he maintains a military bearing as an example to the recruits.

284. Quiet well trained horses are first assigned, each recruit being required to change his horse from day to day.

285. All mounted instruction begins and ends at a walk. *This rule is general.*

286. During the drills in this school, the instructor gives the following rules for the care of horses until he is satisfied by means of questions that they are thoroughly comprehended by the recruits:

Never threaten, strike or otherwise abuse a horse.

Before entering a stall, speak to the horse gently and then go in quietly.

Never take a rapid gait until the horse has been warmed up by gentle exercise.

Never put up a horse brought to the stable or picket line heated, but throw a blanket over him and rub his legs, or walk him until cool. If he is wet put him under shelter, and wisp him against the hair until dry.

Never feed grain to a horse or allow him to stand uncovered when heated. Hay will not hurt a horse, no matter how warm he may be.

Never water a horse when heated, unless the exercise or march is to be immediately resumed.

Never throw water over a horse coming in hot, not even over his legs or feet.

#### THE EQUIPMENT OF THE HORSE.

287. The instructor indicates the different parts of each equipment and their uses before giving his instruction.

##### *To Fold the Saddle Blanket.*

288. The blanket, after being well shaken, will be folded into six thicknesses as follows: Hold it well up by the two corners, the long way up and down; double it lengthwise (so the fold will come between the "U" and "S"), the folded corner (middle of the blanket) in the left hand; take the folded corner between the thumb and forefinger of the right hand, thumb pointing to the left; slip the left hand down the folded edge two-thirds its length and seize it with the thumb and second finger; raise the hands to the height of the shoulders, the blanket between them extended; bring the hands together, the double fold falling outward; pass the folded corner from the right hand into the left hand, between the thumb and forefinger, slip the second finger of the right hand between the folds, and seize the double folded corner; turn the left (disengaged) corner in, and seize it with thumb and forefinger of the right hand, the second finger of the right hand stretching and evening the folds; after evening the folds, grasp the corners in the hands and shake the blanket well in order to smooth the folds; raise the blanket and place it between the chin and breast; slip the hands down half way, the first two fingers outside, the other fingers and thumb of each hand inside, seize the blanket with the thumbs and first two fingers, let the part under the chin fall forward; hold the blanket up, arms extended, even the lower edges, seize the middle points between the thumbs and forefingers, and flit the outside part over the right arm; the blanket is thus held before placing it on the horse.

##### *To Put on the Blanket and Surcingle.*

The instructor commands: BLANKET.

289. Approach the horse on the near (left) side, with the blanket folded and held as just described; place it well forward on his back, by tossing the part of the blanket over the right arm to the

off (right) side of the horse, still keeping hold of the middle points; slide the blanket once or twice from front to rear to smooth the hair, being careful to raise the blanket in bringing it forward; place the forefinger of the left hand on the withers, and the forefinger of the right hand on the backbone, the blanket smooth; it will then be well forward with the edges on the left side; remove the locks of the mane that may be under it; pass the buckle end of the surcingle over the middle of the blanket, and buckle it on the near side, a little below the edge of the blanket.

*To Put on the Watering-Bridle.*

290. The instructor commands: BRIDLE.

Take the reins in the right hand, the bit in the left; approach the horse on the near side, slip the reins over the horse's head and let them rest on his neck; reach under and put the toggle of the bridle through the right halter ring, insert the left thumb into the side of the horse's mouth above the tushes, and press open the lower jaw; insert the bit and pass the toggle through the left halter ring. The bit should hang so as to touch, but not draw up, the corners of the mouth.

The halter strap is passed around the horse's neck and tied securely, or is unbuckled and left at the manger or picket-line.

*To Unbridle.*

291. At the command *unbridle*, pass the reins over the horse's head, and take the toggles out of the halter rings.

*To Saddle.*

292. For instruction, the saddle may be placed four yards in rear or in front of the horse. The stirrups are crossed over the seat, the right one uppermost; then the girth and girth-strap are crossed above the stirrups, the strap uppermost. The blanket having been placed as previously explained, the instructor commands: SADDLE.

Seize the pommel of the saddle with the left hand and the cantle with the right, approach the horse on the near side from the direction of the croup and place the center of the saddle on the middle of the horse's back so it will fit close to it; let down the girth strap and girth; pass by the horse's head to the off side, adjust the girth and straps and see that the blanket is smooth; return to the near side by the croup, raise the blanket slightly under the pommel arch so that the withers may not be compressed; take the girth strap in the right hand, reach under the horse and seize the girth ring with the

left hand, pass the end of the strap through the ring from underneath (from inside to outside), then up and through the upper ring from the outside; if necessary, make another loop in the same manner, the end of the strap being brought through the upper ring to the front; seize it with the left hand, place the fingers of the right between the outside folds of the strap; pull from the horse with the right hand and take up the slack with the left; cross the strap over the folds, pass the end of it, with the right hand, underneath and through the upper ring, back of the folds, then down and under the loop that crosses the folds and draw it tightly; weave the ends of the strap into the strands of the girth; let down the right stirrup, then the left.

The girth when first tied should admit a finger between it and the belly. After exercising for awhile the girth will be found too loose and should be tightened. The surcingle should be a little looser than the girth.

293. To approximate the length of the stirrup straps before mounting, they are adjusted so that the length of the stirrup strap, including the stirrup, is about one inch less than the length of the arm, fingers extended.

*To Unsaddle.*

The instructor commands: UNSADDLE.

294. Stand on the near side of the horse; unbuckle and remove the surcingle; cross the left stirrup over the saddle; loosen the girth strap and let down the girth; pass to the off side by the croup, cross the right stirrup, then the girth; pass to the near side by the croup; cross the girth strap over the saddle; grasp the pommel with the left hand, the cantle with the right and remove the saddle over the croup and place it, as may be directed, in front or rear of the horse, pommel to the front; grasp the blanket at the withers with the left hand and at the loin with the right remove it in the direction of the croup, the edges falling together, wet side in, and place it across the saddle, folded edge on the pommel.

If in the stable, place the saddle on its peg as soon as taken off the horse.

*To Put on the Curb Bridle.*

The instructor commands: BRIDLE.

295. Take the reins in the right, the crown piece in left hand; approach the horse on the near side, passing the right hand along his neck; slip the reins over his head and let them rest on his neck; take the crown piece in the right hand and the lower left branch of the bit in the left hand, the forefinger against the mouth-piece;

bring the crown piece in front of and slightly below its proper position; insert the thumb into the side of the mouth above the tush; press open the lower jaw, insert the bit by raising the crown piece; with the left hand draw the ears gently under the crown piece, beginning with the left ear; arrange the forelock, secure the throat latch and then the curb strap, taking care not to set them too closely.

The mouthpiece rests on that part of the bars directly opposite the chin groove; the curb strap will then lie in the chin groove without any tendency to mount up out of it on the sharp bones of the lower jaw. This position of the mouth piece will be attained for the majority of horses by adjusting the cheek straps so that the mouthpiece will be one inch above the tushes of the horse and two inches above the corner teeth of the mare.

The throat latch should admit four fingers between it and the throat; this prevents constriction of the wind pipe or pressure on the large blood vessels.

The curb strap or chain should be flat and smooth in the chin groove, and loose enough to admit one or two fingers when the branches of the bit are in line with the cheek straps.

At the discretion of the instructor, the halter may be taken off before bridling, the reins being first passed over the neck; if the bridle be put on over the head stall, the hitching strap, if not left at the manger or picket line, will be tied around the horse's neck as in Paragraph 290. The hitching strap may also be arranged as follows: Loop it two or three times through the ring so that the loop may be about eight inches long; wind the strap several times around the loop and draw the end tightly through it.

#### *To Unbridle.*

The instructor commands: UNBRIDLE.

296. Stand on the near side of the horse; pass the reins over the horse's head, placing it on the bend of the left arm; unbuckle the throat latch, grasp the crown piece with the right, and assisting with the left hand gently disengage the ears; grasp the bit with the left hand and gently disengage it from the horse's mouth by lowering the crown piece; place the crown piece in the palm of the left hand, take the reins by the right hand, pass them together over the crown piece, make two or three turns around the bridle, then pass the end between the brow band and crown piece and draw it.

It is hung up by the reins, or placed across the saddle on the blanket.

If the horse has no halter on, unbridle as before, and push the bridle back so that the crown piece will rest on the neck behind the poll until the halter is replaced.

*To Roll the Overcoat.*

297. Spread the overcoat with the lining or inside down; fold the sleeves square across, the cuffs touching at the back seam; spread the cape with the edges parallel to the front edges of the coat, the cape reefed and drawn to the back seam; turn the tails under about nine inches, the folded edge perpendicular to the back seam; fold over the front edges of the coat and skirt to (form a rectangle) about thirty-four to thirty-six inches across, according to the size of the coat; roll tightly from the collar with the hands and knees and bring over the whole roll that part of the skirt which was turned under, thus binding the roll.

*To Roll the Bed Blanket and Shelter Tent.*

(The blanket measures 72 x 84 inches.)

298. Spread the shelter tent and turn under one end about ten inches.

Fold the blanket to three thicknesses across the longer edge, the folds then measure twenty-eight inches wide; place the blanket thus folded across the middle of the shelter tent, the end of the folded blanket about one inch above the folded edge of the tent; fold the exposed parts of the tent over the blanket; roll tightly from the (exposed) end of the blanket with the hands and knees and bring over the whole roll that part of the tent which was turned under, thus binding the roll.

On account of the inelasticity of the canvas it will be found necessary just before turning over the part which binds the roll to spread the canvas a little where it folds inside, at the end of the roll.

*To Pack the Saddle.*

299. *Overcoat* rolled as prescribed and strapped on the pommel; *blanket*, with change of clothing inside, is rolled in the shelter tent (the roll not to be less than twenty-eight nor more than thirty inches in length, according to bulk); *nose bag* slipped over the roll outside of the shelter tent on the near end and the strap buckled over the off end; *side lines* to be spread out over the blanket roll, the leather ends being brought together and the whole secured by the cantle straps; *lariat* rolled around the picket pin and snapped into near cantle ring; *canteen* with *cup* on strap attached to off pommel ring;

*tin plate or meat can, knife, fork and spoon in off saddle bag; curry comb, brush and watering bridle in near saddle bag.*

Extra ammunition and rations to be divided so as to equalize the weight in the saddle bags; also, extra horse shoes (fitted) and nails (pointed) when on active service and liable to be separated from transportation. When the haversack is carried, the change of clothing may be placed in the saddle bags, and the haversack, with the rations, meat can, etc., will be carried on the near side and secured by passing the haversack strap over the blanket roll and under the off end; in this case the tin cup will be attached to the haversack strap.

On the march the lariat to be coiled and fastened with a thong to the near pommel or cantle ring (passing under the the left stirrup strap) the free end snapped into the halter ring.

Generally in field service the bed blanket should be folded and placed over the saddle blanket on the horse.

#### *The Position of Stand to Horse.*

The instructor commands: **STAND TO HORSE.**

300. At this command each trooper places himself, facing to the front, on the near side of the horse, the eyes on a line with the front of the horse's head, so he can see along the front, and takes the position of a soldier except that the right hand, nails down, grasps both reins, the forefinger separating them, six inches from the bit.

#### *To Lead Out.*

The troopers standing to horse, to leave the stable or picket line, the instructor commands: **LEAD OUT.**

301. At this command each trooper, holding his hand well up and firm, conducts his horse, without looking at him, to the place designated by the instructor.

If the horse shows a disposition to resist being led, the trooper takes the reins from the horse's neck, takes the ends in the left hand, then, with the right hand holding the reins, conducts the horse as before. When leading through a low or narrow doorway, the horse should be quieted by the voice or caresses, and not allowed to pass through hurriedly. The instructor may direct the trooper to face towards the horse, holding one rein in each hand, close to the bit, and lead him by stepping backward; after passing the doorway the trooper conducts the horse as before.

The troopers form in single rank from right to left, and until further orders, with intervals of three yards.

*To Align the Rank.*

The instructor commands: 1. *Right (or left)*, 2. DRESS, 3. FRONT.

302. The troopers dress to the right and move their horses forward or backward, as may be necessary to align them.

*To Mount (Without Saddle).*

The instructor commands: 1. *Prepare to mount*, 2. MOUNT.

303. At the first command, drop the right rein, take two back steps, stepping off with the left foot, at the same time sliding the right hand along the left rein; face to the right as the right foot is being planted, and bring the left foot by the side of the right. This should place the trooper behind the near shoulder of the horse. Take both reins in the right hand aided by the left, the reins coming in on the side of the forefinger, the loose end falling over on the off side; place the right hand on the withers, thumb to the left, fingers to the right, holding the reins short enough to feel lightly the horse's mouth; place the left hand on the horse's neck near the withers, and grasp a lock of the mane, the lock coming out between the thumb and forefinger.

At the command *mount*, spring lightly from the ground and raise the body, keeping it erect, and supporting the weight on the hands. (Two.) Carry the right leg, knee bent, over the horse's back, the weight still borne on the hands; sit down gently on the horse's back, and take one rein in each hand, the reins bearing equally on the horse's mouth.

In the earlier lessons the recruit may rest the right forearm on the horse's back to enable him to raise the body when mounting.

*Position of the Trooper, (Without Saddle).*

304. Body balanced on the middle of the horse's back.

Head erect and square to the front.

Chin slightly drawn in.

Shoulders square and well thrown back.

Chest pushed out.

Small of the back slightly curved forward.

Elbows slightly to the rear of the points of the shoulders.

Forearms horizontal and close to the sides without pressure.

Wrists turned in slightly.

The right rein in the right hand, and the left rein in the left hand, coming in on the under side of the little finger, and coming out over the second joint of the forefinger, which is slightly pro-



truded to the front of the other fingers, and on which the thumb firmly holds the rein, the reins bearing equally on the horse's mouth; the bight (end) of the reins falling to the front and on the right side of the horse's neck; the other fingers closed on the reins, the nails towards the body.

The hands about six inches apart on a level with the elbows and the backs straight up and down.

The buttocks bearing equally on the middle of the horse's back, the seat being as flat as possible.

The legs stretched by their own weight, the flat of the thighs and knees clasping the horse equally.

The legs from the knees down vertical and free.

The feet parallel to the sides of the horse, or, as nearly so as the conformation of the man will permit.

*Remarks on the Position of the Trooper.*

*Body balanced on the middle of the horse's back.* Because that is the point where the motion of the horse is least communicated to the rider.

*Head erect and square to the front.* If not the body will incline forward or to one side and be unsteady.

*Chin slightly drawn in.* To prevent the head and shoulders from dropping to the front.

*Shoulders square and well thrown back and the chest pushed out.* If not the chest will be contracted and the back curved to the rear.

*Small of the back slightly curved to the front.* As this form favors an erect carriage and counteracts the tendency to slouch or drop the shoulders.

*Elbows slightly to the rear of the shoulders.* To assist in keeping the shoulders back.

*Forearms horizontal and close to the sides without pressure.* To prevent their being thrown out when the horse trots; if with pressure, the motion of the body will be communicated to the hand and rein.

*The wrists turned in slightly.* To assist in keeping the elbows close to the body.

*The buttocks bearing equally, and the seat as flat as possible.* So that the body will preserve its steadiness.

*The flat of the thighs and the knees clasping the horse equally.* To give a firm, steady seat.

*The legs, from the knees down vertical and free.* That they may be carried to the rear, to aid in directing the horse without deranging the seat.

*The feet parallel to the horse.* To assist in holding the thighs in position.

The body from the hips up should be movable and should, in a measure, yield to the motions of the horse; from the hips to the knees, immovable and close to the horse; from the knees down, movable.

The arms move freely at the shoulders to avoid communicating the motion of the body to the reins; the hands oscillate slightly with the motion of the horse, but with that distinction they are stationary, except to direct the horse.

During the earlier lessons the position of the recruit is necessarily one of constraint.

No man can be said to be a good horseman who has not a firm, well balanced seat; it is therefore of the utmost importance; it will assist the horse; the want of it, will impede the horse's actions, make sore backs, etc.

*To Lengthen or Shorten the Reins.*

305. Bring the hands towards each other without turning them in; grasp the right rein with the thumb and forefinger of the left hand, a short distance from the right thumb; relax the grasp of the right hand, and allow the rein to slip through, to get the proper bearing, then close the right hand and replace the hands.

*To Take the Reins in One Hand.*

306. To relieve the constraint of the arms by changing their position, as well as to prepare the recruits for the use of the curb bridle, the instructor commands: 1. *In left (or right) hand,* 2. TAKE REINS.

At the second command, bring the left hand opposite the middle of the body; half open and place in it the right rein, holding both reins as explained for the left rein, except that the little finger separates the reins, the right rein coming in above the little finger; close the left hand and drop the right behind the thigh.

*To Adjust the Reins.*

307. Seize the bight with the thumb and forefinger of the right hand; partly open the left hand so as to allow the reins to slip through it; raise the right hand until the reins bear equally; close the left hand upon them, letting the bight fall over the forefinger and right rein; drop the right hand.

*To Retake the Reins in Both Hands.*

308. The reins being in the left hand, the instructor commands: 1. *In both hands*, 2. TAKE REINS.

At the second command, half open the left hand, seize with the right hand the right rein and hold them as previously described.

*To Drop Reins.*

309. The instructor commands: DROP REINS.

Drop the reins on the horse's neck near the withers and drop both hands behind the thighs.

*To Retake Reins.*

310. The instructor commands: TAKE REINS. The trooper retakes the reins and holds them as before dropping them.

*To Dismount (Without Saddle).*

The instructor commands: 1. PREPARE TO DISMOUNT, 2. DISMOUNT.

311. At the first command, pass the right rein into the left hand, then seize both reins with the right hand in front of the left, and place the right hand on the withers, thumb to the left, fingers to the right, the reins coming into the hand between the thumb and the forefinger; let go with the left hand, place it on the top of the neck, directly in front of the withers, and grasp a lock of the mane, the lock coming out between the thumb and forefinger.

At the command *dismount*, raise the body on both hands, carry the right leg, knee bent over the horse's back without touching it; bring the right leg near the left and come lightly to the ground on the balls of the feet, bending the knees a little; face to the left, drop the right rein, step to the front, sliding the right hand along the left rein, and take the position of *stand to horse*.

The trooper being mounted, to dismount on the off side, the instructor commands: 1. *To the right*, 2. PREPARE TO DISMOUNT, 3. DISMOUNT.

312. The second and third commands are executed as previously explained, but by inverse means, the trooper coming to the ground on the off side.

*The trooper being dismounted and on the right of his horse, to mount from the off side.*

The instructor commands: 1. PREPARE TO MOUNT, 2. MOUNT.

313. The commands are executed as previously explained, but by inverse means.

314. If the command be, 1. *Squad*, 2. *MOUNT*, the men execute at the command *mount* all that has been prescribed at the commands *prepare to mount* and *mount*.

If the commands be: 1. *Squad*, 2. *DISMOUNT*, or 1. *To the right*, 2. *Squad*, 3. *DISMOUNT*.

The men execute at the command *dismount*, all that has been prescribed at the commands *prepare to dismount* and *dismount*.

These rules are general, the command *platoon*, *troop*, etc., being substituted for the command *squad*.

*To Rest.*

The instructor commands: *REST*.

315. If the squad be dismounted, it is executed as in the School of the Soldier, except that the troopers retain hold of the reins and keep their horses in place.

If the squad be mounted, either marching or at a halt, the men are permitted to turn their heads, to talk, and to make slight changes of position, but they will not lounge on their horses.

The command *stand at ease* is executed as in the School of the Soldier.

If the squad be mounted the instructor commands: 1. *At ease*, 2. *MARCH*.

The men are permitted to turn their heads or make slight changes of position, but preserve silence.

To resume the attention the instructor commands: 1. *Squad*, 2. *ATTENTION*.

316. At the command *attention*, each trooper, if dismounted, takes the position of *stand to horse*; if mounted, he takes the position of the trooper. *This rule is general.*

*To Dismiss the Squad.*

The squad being dismounted, the instructor commands: 1. *By the right* (or *left*, or *right and left*), 2. *Break rank*, 3. *MARCH*.

317. At the command *march*, the trooper on the right leads his horse one yard to the front and then marches directly to the stables or picket line.

The troopers execute in succession the same movement so as to follow the horse next on the right or left, at a distance of one yard.

The men remove, clean and put the equipments in place, care for and secure their horses under the directions of the instructor or senior non-commissioned officer.

Each man, as soon as he has finished *stands to heel*. The instructor or non-commissioned officer having satisfied himself by in-

spection that the horses and equipments are properly cared for and that the precautions required on their return from exercise have been observed, orders the men to fall in, marches them to the troop parade and dismisses them as prescribed in the School of the Soldier.

318. *Stand to heel*, each man stands at attention, one yard in rear of and facing his heel post. At the picket line he stands at attention, one yard in rear of and facing his horse.

#### MOUNTED EXERCISES.

319. The mounted exercises make the recruit agile and supple, give him confidence and enable him to maintain a balanced seat on his horse in every variety of movement. All troopers will be frequently practiced in them, in order that the agility and suppleness they have acquired may be maintained.

Whenever practicable the recruits will be prepared for instruction in this school by the execution of the mountings and dismountings and other mounted exercises, with a wooden vaulting horse about fifteen hands high, or with a horizontal vaulting bar, the height of which will depend upon the ability of the man, being gradually raised until at the height of a horse.

To give confidence to the men the horses which are apt to become uneasy during the first few lessons will be tied in roomy stalls, to a fence or to the walls of the riding hall, or the horse may be put on the longe, the trooper dropping the reins.

The horses have the watering bridle, and at the discretion of the instructor may have the saddle pad or blanket and surcingle. If the horse be tied it is recommended that the pad or blanket be dispensed with.

As soon as the troopers have been taught with the horses tied or on the longe, to mount, dismount and to hold the reins, and when they have some confidence on horseback, which should be acquired after they have succeeded in executing with some facility as far as to include the eighth mounted exercise, the exercises are then continued with the horses in line with intervals or in column of troopers; also the instruction in marching and the use of the aids will then begin and thereafter form a part of each lesson.

When the mounted exercises are correctly executed at a halt, they are repeated at a walk, then at a trot and finally at a canter.

The troopers will not be required to go through all the mounted exercises in the order in which they are described; the more difficult exercises not being attempted and the gaits of the easier ones being restricted to a walk, until the troopers have acquired a secure, well balanced seat at a trot and a gallop.

During the exercises the trooper drops and retakes reins, without command, whenever necessary to execute the motions or to control his horse; and when he dismounts, he remains near the shoulders of the horse and has one hand on the withers (or pommel, horses saddled). When the horse is not led, the hand on the withers (pommel) holds the reins with a bearing just sufficient to let the horse know he is under control.

To resume position of STAND TO HORSE, the instructor commands: STAND TO HORSE.

#### *The Galloping Step.*

320. In the exercises at a trot and canter, the trooper when dismounted, keeps pace with the horse at the shoulder by means of the galloping step, which he executes (keeping one hand on the horse), by a succession of leaps, arising and alighting in harmony with the rise and fall of the forehand of the horse, keeping the left or right foot in advance, according as he is on the left or right side of the horse, and supporting his weight on the balls of the feet. Frequent brief rests should be given in order not to strain or unduly fatigue men who are not accustomed to the exercises.

The first, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth, the first part of the fifteenth and sixteenth exercises may be executed as prescribed in the School of the Soldier.

#### FIRST MOUNTED EXERCISE.

321. 1. LEAN BACK, 2. UP. Lean back until the head rests on the horse's croup; the hands resting on the thighs.

UP. Resume gradually the position of the trooper without deranging the position of the feet and legs.

#### SECOND MOUNTED EXERCISE.

322. 1. RAISE KNEES, 2. DOWN. Raise the knees until the thighs are horizontal; the lower legs vertical; the toes on a level with the heels; the body erect and the shoulders square.

DOWN. Resume the position of the trooper.

#### THIRD MOUNTED EXERCISE.

323. 1. RAISE FEET, 2. DOWN. Raise the feet to the rear and as high as practicable on the sides of the horse; then raise the knees, keeping the feet in place, until on a level with the ankle.

DOWN. Resume the position of the trooper.

#### FOURTH MOUNTED EXERCISE.

1. *Right (or left)*, 2. FACE, 3. FRONT.

324. Turn the body to the right, carry the right knee towards the rear, the legs astride the horse, the feet pointing to the right, body erect; the hands resting on the right thigh.

FRONT. Resume the position of the trooper.

FIFTH MOUNTED EXERCISE.

FACE TO THE RIGHT (OR LEFT).

325. Pass the left leg, knee bent, over the horse's neck, turning on the seat and sit faced to the horse's right; the body erect, the hands resting on the thighs. The facings may be continued by the same command, the trooper passing the right or left leg over the croup or neck of the horse.

*The Reaches.*

The object of the reaches is to teach the recruit to regain his balance, to impress him with the importance of the hold of the legs, and confirm him in their use, and to prepare him for the use of the saber mounted.

SIXTH MOUNTED EXERCISE.

326. The instructor commands: 1. *Right (or left)*, 2. REACH.

Carry the right hand, back up, straight to the front fingers and arm extended and horizontal.

(Two.) Close the legs firmly, sweep the hand quickly to the right, keeping the arm horizontal and leaning the body to the right.

(Three.) Resume the position of the trooper.

SEVENTH MOUNTED EXERCISE.

327. The instructor commands: 1. *Right (or left) rear*, 2. REACH.

The first motion is the same as right reach.

(Two.) Sweep the hand quickly by the right to the rear keeping the arm horizontal, at the same time making a *right* face, and leaning the body to the rear.

(Three.) Resume the position of the trooper.

EIGHTH MOUNTED EXERCISE.

328. The instructor commands: 1. *Right (or left) low*, 2. REACH.

At the second command, hold the reins with the thumb and forefinger, grasp a lock of the mane with the left hand.

(Two.) Bend the body to the front and downward, to the right of and near the horse; the right arm extended and the fingers as near the ground as possible.

(Three.) Resume the position of the trooper.



329. The horse being saddled, the instructor commands: 1. *Right (or left) low*, 2. *REACH*.

Hold the reins with the thumb and forefinger and grasp a lock of the mane with the other fingers of the left hand; free the left foot from the stirrup and carry the leg, knee bent, to the rear, supporting it just above the ankle against the cantle of the saddle.

(Two.) Bend the body to the right and front, and near the horse; carry the right foot in the stirrup slightly to the rear, supporting it against the side of the horse; extend the right arm and touch the ground with the fingers.

(Three.) Resume the position of the trooper.

330. Being in line with the intervals or columns of troopers, the instructor commands: 1. *To the right (or left) DROP SABER*, 2. *Right (or left) low*, 3. *REACH*.

At the first command, the trooper drops the saber on the ground to the right of the horse; at the command *reach*, the troopers execute the right low reach and pick up the saber.

The same exercise may be had with the cap, or other object. The instructor observes that the troopers are not impatient with the horses; that each trooper persists until he accomplishes the feat or demonstrates his inability to do so.

#### NINTH MOUNTED EXERCISE.

331. The trooper mounted and at a *face to the left (or right)*, to mount, command: 1. *Prepare to mount*, 2. *MOUNT*.

At the first command, place the right hand on the withers; seize a lock of the mane with the left hand.

At the second command, support the weight on the hands, turning the body to the right about, legs extended and joined, then pass the right leg, knee bent over the horse's back and take the position of trooper.

#### TENTH MOUNTED EXERCISE.

332. The trooper mounted at face to the left, to dismount, 1. *Prepare to dismount*, 2. *DISMOUNT*.

At the first command, place the right hand on the withers; seize a lock of the mane with the left hand.

At the second command, support the weight on the hands, turning the body to the right about, descend lightly to the ground on the balls of the feet, bending the knees a little.

If the trooper be at face to the right, to dismount on the off side, command: 1. *To the right*, 2. *PREPARE TO DISMOUNT*, 3. *DISMOUNT*.



Executed as just described, except that the positions of the hands are reversed, that the body is turned to the left about and descends on the off side.

ELEVENTH MOUNTED EXERCISE.

333. The trooper mounted at face to the left, to dismount on the off side: 1. *To the right, prepare to dismount*, 2. **DISMOUNT**.

At the first command, place the right hand on the withers; seize a lock of the mane with the left hand.

At the second command, support the weight on the hands, turning the body to the right about, pass both legs, joined, over the horse's back and descend lightly to the ground on the off side, alighting on the balls of the feet, bending the knees a little.

If the recruit be at a face to the right, to dismount on the near side.

Commands: 1. *Prepare to dismount*, 2. **DISMOUNT**.

Executed as just described, except that the position of the hands is reversed, that the body is turned to the left about and descends on the near side.

TWELFTH MOUNTED EXERCISE.

334. The trooper mounted, to face the croup: *Face to the right (or left) ABOUT*.

Place the right hand on the horse's back behind the seat (with saddle on cantle), left hand on the withers (with saddle on pommel); raise the body, arms extended.

(Two.) Tilt the body to the right, elevating the buttocks, change the right leg to the near side, left to the off side, and take position facing the croup.

The trooper facing to the croup, to face him to the proper front, the instructor gives the same commands, which are executed as just explained.

It is preferable for the troopers to go through this exercise by individual trial, until they have gained the confidence necessary to facility, before requiring them to execute it at the command.

THIRTEENTH MOUNTED EXERCISE.

335. To mount, marching: 1. *Prepare to mount*, 2. **MOUNT**. Executed as prescribed from a halt, except that the trooper is at a galloping step; that he springs forward as he rises, and that as he drops into his seat, he catches against the flank with his leg to avoid passing over the horse.

## FOURTEENTH MOUNTED EXERCISE.

336. To dismount, marching: 1. *Prepare to dismount* (or, 1. *To the right, prepare to dismount*), 2. **DISMOUNT**.

Executed as prescribed from a halt, except that when the legs are joined, the trooper presses the left leg against the side of the horse to push his body clear, and alights on the ground faced to the front and takes the galloping step.

## FIFTEENTH MOUNTED EXERCISE.

337. To vault at a halt: 1. *Prepare to vault*, 2. **VAULT**.

Executed from either side of the horse, as prescribed for the mount from a halt, except that the trooper leans the body forward and carries both legs joined over the horse's back without touching it; as soon as the body clears the horse he eases the right hand gradually and takes it off the withers (pommel) just before coming to the ground, alights on both feet and drops the left hand.

*To Vault Marching.*

Executed by the same commands and means as a halt, except that the trooper alights facing to the front, and takes the galloping step.

338. When the trooper is sufficiently well instructed the instructor may combine the mounting, dismounting and vaulting. For example: Mounted faced to the left, the instructor commands: **DISMOUNT AND MOUNT OR DISMOUNT, VAULT AND MOUNT**, etc., etc.

## SIXTEENTH MOUNTED EXERCISE.

339. *To jump on and over the horse.* The squad being in line at stand to horse without arms or spurs. A quiet horse is held with his side towards and fifteen or twenty yards in front of the line. The troopers will be instructed as to the kind of jump they are to make. At the command: 1. *First trooper from the left*, 2. **MARCH**, the first trooper turns his horse over to the trooper next on his right or left; walks along the front and when opposite the horse to be jumped faces him and takes a fast run; upon reaching him he places his hands on the horse's back, jumps astride of him or over him as directed, returns to his place in the rank and resumes his horse. Each of the other troopers moves out successively at the command *next*.

The troopers will be exercised at jumping on the horse from the direction of the croup.

## SEVENTEENTH MOUNTED EXERCISE.

340. *To mount double and to dismount.* The squad is divided into two equal parts; one part, designated the first section, being mounted,

and the troopers called individually Nos. 1; the other part, designated as second section, being dismounted, and its troopers called individually Nos. 2.

Nos. 1 remain with their horses and Nos. 2 are ordered to join Nos. 1; or, if in the riding hall, the first section is put on the track in column of troopers marching to the left hand, and the second section ordered to join it. Nos. 2 place themselves on the near side and near Nos. 1.

1. *Prepare to mount, 2. MOUNT.* At the first command No. 1 takes the reins in the right hand, lowers the left shoulder and carries the left elbow, bent, to the rear, and supports himself by clasping the horse with the legs and, if necessary, places his right hand on the horse's neck or withers; No. 2 clasps the forearm of No. 1 with his left hand, back of the hand up; places his right hand on the horse's back directly behind No. 1 and if marching takes the galloping step.

At the second command mount, No. 2 springs up and seats himself behind No. 1, astride of the horse and facing to the front; No. 1 at the same time raising his left shoulder and leaning his body to the right to assist and support No. 2, and immediately resumes the erect position; No. 2 steadies his seat by placing the hands under the armpits of No. 1, thumbs behind the shoulder.

341. Being mounted double, to dismount:

1. *PREPARE TO DISMOUNT, 2. DISMOUNT.*

At the first command, No. 1 takes the reins in the right hand; carries his elbow to the rear and steadies himself as at the command *prepare to mount* for mounting double; No. 2, pressing against No. 1, pushes himself slightly to the rear, and places his right hand on the horse's back between himself and No. 1, and his left hand on the left forearm of No. 1 outside of the elbow, back of the hand up.

At the second command, No. 2 carries the right leg over the croup and comes to the ground, supporting himself by his hands, without hanging on No. 1, and takes the galloping step.

If the command be: 1. *Number one, 2. PREPARE TO DISMOUNT, 3. DISMOUNT*, No. 1 drops the reins, places his left hand on the left thigh of No. 2, and grasps a lock of the mane with the right hand; at the command dismount, No. 1 passes the right leg over the horse's neck, raising the right hand and re-seizing the mane as the leg passes, springs from the horse, pushing himself forward with the left hand, and supporting himself with the right, comes to the ground and takes the galloping step. No. 2 then takes the reins and seats himself forward; No. 1 retains his hold of the mane until

he can safely do without it, and then takes position as No. 2 along side the mounted trooper, now become No. 1.

If the commands be: 1. *Squad*, 2. DISMOUNT, (both troopers being mounted) first No. 2 dismounts, then No. 1 in front of No. 2. At the command: 1. *Squad*, 2. MOUNT, (both troopers being dismounted) No. 1 will mount and then No. 2, as previously explained.

If, when the squad is dismounted, the instructor wishes No. 1 to become No. 2, and No. 2 to become No. 1, he commands: CHANGE NUMBERS, when the troopers take places according to their new numbers.

These exercises are executed on both sides of the horse, and at all gaits.

#### THE AIDS IN HORSEMANSHIP.

342. Preparatory to the movements, the instructor mounts the squad and explains the uses of the reins and legs.

The applications of the reins and legs, by which the movements and gaits of the horse are determined, are called the *Aids*.

The trooper should not only know when to apply a given aid, but he should also understand why he applies it.

The reins serve to prepare the horse to move, and to guide, support and halt him; their action should be gradual and in harmony with that of the legs.

In using them, the arms should have free action at the shoulder; when a light pressure will be sufficient to govern the horse, the action of the hand should be at the wrist; for greater pressure the elbow should be carried back, but without raising the hand.

In riding, the hand should be kept steady, and ought not to move with the body; at the same time it must be kept light, for the bit causes pain if pressed constantly on the mouth, destroys its sensibility and makes the horse's mouth hard.

The hand is light when its pressure is not greater than necessary, and when there is an almost imperceptible alternate feeling and easing of the hand in harmony with the motion of the horse, by which the delicacy of the mouth is preserved and he is made to carry himself light.

That hand is best, which by giving and taking properly, controls the horse with the least force and will best preserve the mouth.

As a rule it is recommended that the recruits ride with one rein in each hand; this will prevent the bad habit some get into of holding the left shoulder advanced.

The legs serve to assist, with the reins, in controlling the horse. Closing the knees, without pressure by the lower part of the leg,

tends to steady the horse in position. Closing the lower legs equally with slight pressure prepares him to move, or if moving to keep him up to the hand. Closed with greater pressure they urge him forward.

Carrying the right (or left) leg to the rear and closing it with pressure, causes the horse to move his haunches to the left (or right).

The pressure of the legs must be an elastic muscular action; a heavy clinging pressure, or a dull thumping with the heels must not be permitted.

The reins act to direct the forehand; the lower legs incite to action and govern the movements of the haunches.

#### *To Gather the Horse.*

343. Close the knees gradually and gently, at the same time turn the little finger towards the body; this is to attract the attention of the horse and to prepare him to move, that his first motions be neither too abrupt nor too slow.

#### *To March.*

Being at a halt, the instructor commands: 1. *Forward*, 2. **MARCH**.

344. At the command *forward* gather the horse; at the command *march* bring the hand a little toward the body, turning it on the wrist, that is, *rein in* slightly, then immediately yield the hand and close the legs slightly to the rear, with a firm, equal and elastic pressure until the horse yields to the impulse; then relax the pressure of the legs and adjust the reins so as to keep the hands in proper position and have a slight feeling of the bit.

#### *To Halt.*

Being in march, the instructor commands: 1. *Squad*, 2. **HALT**.

345. At the command "*squad*," gather the horse without slackening the gait.

At the command "*Halt*," rein in by gradually bringing the hands towards the body, turning them on the wrist and carrying the elbows slightly to the rear, at the same time close the legs to steady the horse. When the horse stops, relax the hands and legs.

*Being in line with intervals, to march by the flank*, the instructor commands: 1. *By the right (or left) flank*, 2. **MARCH**.

346. At the first command gather the horse; at the command *march* open the right rein and close both legs, the right leg a little more to the rear than the other; turn to the right by moving the horse over a quarter of a circle whose radius is two yards; when

the turn is nearly ended, diminish the effect of the right rein and leg using the left rein and leg to straighten the horse; when the turn is completed, close both legs and move off at a right angle to the original direction.

When executed at a trot or gallop, the effect of the outer (in this case the left) leg should be increased to sustain the horse.

347. A squad having been marched by the flank from line with intervals, is in *column of troopers*, with the distance of four feet from the head of the horse to the croup of the horse next in front of him.

For convenience in estimating spaces, each horse with his rider is considered to occupy a space of three yards in length and one yard in width, but by measurement the horse occupies only about eight feet in length.

Marching in column of troopers, each recruit should so conduct his horse that the recruit next in front of him shall hide all others in front; all follow in the trace of the conductor or leading trooper.

Distances when lost should be regained gradually.

If the column of troopers be marched by the flank, the squad will then be in line with intervals of three yards between troopers.

348. To halt the column of troopers and to resume the march, the instructor commands: 1. *Squad*, 2. **HALT**, and 1. *Forward*, 2. **MARCH**.

#### TO MARCH TO THE REAR.

349. Being in line with intervals, or in column of troopers, the instructor commands: 1. *Right (or left) about*, 2. **MARCH**.

At the command *march*, each trooper turns his horse on a half circle with a radius of two yards and then moves off in the new direction—the former rear.

If in line, the instructor may command: 1. *Guide right (or left or center.)*

To halt upon the completion of the about, the instructor commands: 1. *Squad*, 2. **HALT**.

#### TO OBLIQUE.

350. Being in line with intervals, or in column of troopers, the instructor commands: 1. *Right (or left) oblique*, 2. **MARCH**.

At the command *march*, each trooper turns his horse half right on an eighth of a circle and then moves at an angle of forty-five degrees to his former direction.

To resume the original direction, the instructor commands: 1. *Forward*, 2. **MARCH**. At the command *march*, each trooper turns half left and then moves forward.

351. If, when obliquing, the commands: 1. *Squad*, 2. *HALT*, be given, the troopers halt in the oblique position; they resume the oblique march at the commands: 1. *Oblique*, 2. *MARCH*.

352. Marching in column of troopers, to change direction, the instructor commands: 1. *Column right* (or *left*), or 1. *Column half-right* (or *half-left*), 2. *MARCH*.

At the command *march*, the leading trooper executes the turn, or half turn to the right and marches in the new direction; the other troopers turn successively on the same ground.

If at a halt, to march and change direction at the same time, the instructor commands: 1. *Forward*, 2. *Column right* (or *left*), (or 2. *Column half-right* or *left*), 3. *MARCH*.

At the first command all the troopers gather their horses; at the command *march* the leading trooper turns to the right, the other troopers move forward and in succession turn on the same ground.

*To Rein Back.*

353. Being in line at a halt, the instructor commands: 1. *Backward*, 2. *MARCH*, 3. *Squad*, 4. *HALT*.

At the command *backward*, gather the horse; at the command *march*, keep a firm seat, hold both legs close; rein in gradually until the horse yields to the pressure of the bit and steps to the rear; then immediately yield the hand slightly to allow the horse to regain his balance, keeping both legs closed; continue in the same manner to yield the hand and rein in after each step.

If the horse tends to raise his nose and throw his weight on his haunches, hold the hands low and play the reins with rapid motions of the hands until he yields.

If the horse throws his haunches to the right, ease the left leg and close well the right leg; if to the left, ease the right leg and close well the left leg. If this be not sufficient to put the horse in proper position, open the rein on the side toward which he throws his haunches, supporting him at the same time with the other rein.

ALIGNMENT.

354. To give a general alignment to the squad the instructor orders any recruit to move forward or rein back, so as to be in line with the other men.

*Remark.*

For convenience the instructor may cause the recruits, upon leading out, to form line with horses one foot and a half apart, and teach them to mount and dismount in line, to march by the

flank from line, and to form line from column of troopers, only employing these movements to begin and end the drill, the interval of three yards being maintained as before during the instruction.

*To Mount in Line (without Saddle).*

355. The instructor causes the men to count fours and commands: 1. *Prepare to mount*, 2. **MOUNT**, 3. *Form*, 4. **RANK**.

At the first command the odd numbers, stepping off with the left foot, lead their horses four yards to the front, keeping opposite their intervals, and regulating by the right; all then prepare to mount; at the command *mount*, they mount; at the command *rank*, the even numbers move up in the intervals without jostling or precipitation.

*To Dismount (without Saddle).*

356. The instructor commands: 1. *Prepare to dismount*, 2. **DISMOUNT**, 3. *Form*, 4. **RANK**.

At the first command the odd numbers gather their horses and move forward four yards, and all prepare to dismount; at the command *dismount*, they dismount; at the command *rank*, the even numbers move up in the intervals.

*Being in Line without Intervals, to March by the Flank.*

357. Being at a halt, the instructor commands: 1. *By trooper, by the right flank*, 2. **MARCH**.

At the first command, the man on the right gathers his horse; at the command *march*, he turns to the right and moves forward in the new direction. The second man from the right gathers his horse as soon as the first begins to move, turns to the right and follows him at the distance of four feet from head to croup. The movement is executed in succession by the other troopers as explained for the second.

If marching, all halt at the command *march*, except the man on the right. The movement is then executed as before.

*Being in Column of Troopers, to form Line to the Right or Left.*

358. The instructor commands: 1. *Left (or right) into line*, 2. **MARCH**, 3. *Squad*, 4. **HALT**, 5. **FRONT**.

At the first command, the leading trooper gathers his horse; at the command *march*, he turns to the left and moves forward in the new direction, halting at the fourth command, given after he has advanced at least five yards. The others move forward and at two yards before arriving opposite their places in line, each turns to the left, forms rank to the left of the man who preceded him, halts on the line and dresses to the right.



*The Riding School.*

359. If there be no riding hall, a rectangular track is laid out, one hundred yards long and thirty-three yards wide. The corners are marked with stakes or stones, and the trooper is cautioned to keep within the prescribed limits.

Spent tan, when it can be obtained, makes an excellent covering and should be spread on a track of six to ten feet in width. For the execution of the mounted exercises, it is advantageous to have the track enclosed. The fence should incline outward to protect the knees of the trooper.

The spaces between stables may be utilized for open maneges.

A convenient number of troopers, about twelve to sixteen, are united for instruction in the hall. The horses should be equipped with the snaffle bit, and at the discretion of the instructor may be saddled.

The leading and rear troopers, designated the conductors, should be non-commissioned officers or instructed troopers.

The march is to the right hand or to the left hand, according as the right or left hand is towards the interior of the manege.

The instructor repeats the exercises already prescribed, still paying more attention to the horsemanship of the troopers than to the accuracy of the drill.

The squad may be divided into two sections. The instructor designates the rear trooper of the first section and the following trooper of the second section as conductors. The sections may then be separated by halting the second or causing the first section to take an increased gait. When the leading conductors are at equal distances from each other, the second section takes up the march, or the increased gait, and maintain their relative distances.

The conductors are to arrive at the same time at the diagonal angles, the rear column regulating by the other. In changing hands in column, the columns pass each other to the right; in changing hands in line, the troopers pass each other to the right, and keep their legs closed in passing through the intervals of the opposite section, to prevent the horses from slackening the gait.

*To Enter the Riding School.*

360. The squad being mounted, is marched into the riding school in column of troopers; when the leading conductor is within two yards of the opposite side, the instructor commands: 1. *Column right (or left)*, 2. **MARCH.**

The conductor takes a free and even gait and keeps the track, changing direction exactly at the corners without command. The troopers follow, preserving their distances and recovering them by degrees when lost; just before arriving at a corner, each gathers his horse and executes the turn correctly. The instructor, placing himself on the inside of the track, superintends the movements of the men and corrects their positions.

If, in marching to the right hand, the horse bears his shoulders to the right, open the left rein a little, and close the right leg; if he throw his haunches to the right, close the right leg in rear of the girth, and feel lightly the right rein.

#### *To Change Hands.*

361. The instructor commands: 1. *Column right* (or *left*), 2. **MARCH**, when the conductor is marching on one of the sides; and 3. *Column left* (or *right*), 4. **MARCH**, when he arrives within two yards of the opposite side.

Or, 1. *Column half-right* (or *half-left*), 2. **MARCH**, when the conductor enters one of the long sides; and, 3. *Column half-left* (or *half-right*), 4. **MARCH**, when he nearly reaches the opposite side.

Or, as soon as the last man is upon one of the long sides, 1. *Right* (or *left*), *oblique*, 2. **MARCH**, adding, 3. *Forward*, 4. **MARCH**, when the squad arrives near the opposite side.

Or, 1. *By the right* (or *left*) *flank*, 2. **MARCH**, when the column is marching on one of the long sides, and, 3. *By the left* (or *right*) *flank*, 4. **MARCH**, when the line arrives within two yards of the opposite side.

In marching in line, each trooper regulates his horse by that of the conductor who last led in column.

#### *To Trot.*

362. Being at a walk upon one of the long sides, the instructor commands: 1. *Trot* (or *slow trot*), 2. **MARCH**.

At the command *trot*, gather the horse; at the command *march*, yield the hands a little and close the legs by degrees, until the horse obeys, when the hands are gradually replaced and the legs relaxed.

The gait is slow at first, and the instructor sees that the troopers feel lightly their horses' mouths without bearing upon the reins, and explains that the necessary ease and stability are acquired by sitting well down on the horse, or saddle, and partially relaxing the body, thighs, and legs.

He requires the troopers to preserve their seats by balancing the

body; that they avoid the common fault of leaning the body or curving the back to the rear; that they sit erect, and keep the thighs close to the horse.

The movements already taught at open intervals at a walk, are repeated at a trot, care being taken to give the commands when the squad is marching on one of the long sides of the track, or when two yards from it. In turning by trooper to the right or left, the instructor sees that the trot is neither slackened nor increased.

Recruits at first often support themselves with the reins and cling with the legs; to remedy these faults they are made to ride without holding the reins, the arms folded; to accomplish this, the troopers are formed in column of twos, or two parallel columns; each trooper in one column is instructed to pass the reins over his horse's head to the trooper next to him in the other column, the ride then conducted at a trot.

The same instruction may be given on the longe.

*To Pass from the Trot to the Walk.*

363. Command: 1. *Walk*, 2. *MARCH*.

At the command *walk*, gather the horse; at the command *march*, raise the hands by degrees, and hold the legs close to prevent the horse from coming to a halt; as soon as he walks, replace the hands gradually and relax the legs.

*To Increase and Diminish the Rapidity of the Trot.*

364. Being at a slow trot, the instructor commands: *TROT OUT*.

At this command, yield the hands, and close the legs by degrees until the horse gradually increases the gait to a fast trot.

As soon as the proper gait is attained, the instructor sees that the horses are kept up to it, and pays particular attention to the positions of the troopers; if their seats become too much deranged, he brings the squad to a slow trot, or to a walk; this is especially important in the earlier instructions of recruits.

365. To resume a moderate trot, the instructor commands: *SLOW TROT*.

At this command, rein in by degrees until the horse moderates the gait, closing the legs to prevent his taking the walk.

*To Pass from a Halt to the Trot.*

366. The instructor commands: 1. *Forward*, 2. *Trot*, 3. *MARCH*.

At the command *forward*, gather the horse; at the command *march*, pass at once to the trot as explained from a walk.

*To Halt from a Trot.*

367. The instructor commands: 1. *Squad*, 2. **HALT**.

Executed as explained from a walk; the troopers stop their horses together, but not too abruptly.

*To Pass from the Front to the Rear of the Column.*

368. Being at a walk, to teach recruits to control their horses, and to use the reins and legs, the instructor commands: 1. *First trooper from front to rear*, 2. **MARCH**, 3. **NEXT**.

At the first command, the leading trooper gathers his horse; at the command *march*, he leaves the column by a left or right about, according as he is marching to the left or right hand, moves parallel to the column and enters it again at the rear by another about.

Each trooper successively executes the same movement at the command *next*, which is repeated by the instructor until all the troopers have passed from front to rear or from rear to front.

*To Pass from the Rear to the Front of the Column.*

369. Being at a walk, the instructor commands: 1. *Last trooper from rear to front*, 2. *Trot*, 3. **MARCH**, 4. **NEXT**.

At the command *trot*, the trooper in rear gathers his horse; at the command *march*, he leaves the column by an oblique, takes the trot, moves parallel to the column, enters it again at the front by another oblique and resumes the walk.

Should the trooper enter the column at too great a distance in front of the leading trooper, he slackens the walk until the leading trooper arrives at the proper distance.

*To March in Circle.*

370. The conductor being on one of the long sides, and seventeen or more yards from a corner, the instructor commands: 1. *Circle to the right (or left)*, 2. **MARCH**.

At the first command, the leading conductor gathers his horse; at the command *march*, he describes a circle between the two tracks; the other men follow, each gathering his horse before entering upon the circle, keeping him on it by the inner rein, and supporting him by the leg on that side.

371. While circling, the squad may pass from a walk to a trot and the reverse, may be halted in column and put in march, as when marching on the track.

To change hands, the instructor commands: *Column right, (or left)*, 2. **MARCH**.

The squad passes over the diameter of the circle, and circles in the opposite direction by the commands: 1. *Column left (or right)*, 2. **MARCH**; the command, *march*, being given when the conductor is two yards from the circumference.

To march again on a straight line, the instructor commands when the leading conductor arrives on the track of the long side; 1. *Forward*, 2. **MARCH**.

The conductor, followed by the troopers, then takes the track and moves forward.

*Individual Circling.*

372. Marching to the right (or left) hand on the long side of the hall. The instructor commands: 1. *Troopers, circle to the right (or left)*, 2. **MARCH**.

At the command *march*, each trooper marches on a circle four yards in diameter, tangent to the track, guiding themselves on the conductor, all completing the turn at the same time. The troopers continue to march on the circle, until the command: 1. *Forward*, 2. **MARCH**, given as the troopers take the track; they march on the track to the same hand as when the movement began.

The troopers when marching on the circle to the right, open the right rein and close both legs, and if marching at a trot or a gallop, the left more than the right, to sustain the horse. If the commands: 1. *Squad*, 2. **HALT**, be given, the troopers halt their horses facing in the same direction as the conductors.

*To Mount (with Saddle).*

373. The horses being equipped with saddles and curb-bridles, are habitually formed in line. The troopers standing to horse, the instructor causes them to count fours, and commands: 1. **PREPARE TO MOUNT**, 2. **MOUNT**.

At the first command, the odd numbers lead out as previously explained.

All the troopers drop the right rein, take two back steps, stepping off with the left foot, at the same time sliding the right hand along the left rein; half face to the right as the right foot is being planted, and bring the left foot near the right, which should place the trooper about opposite the girth; with the aid of the left hand take both reins in the right hand, and place the right hand on the pommel, the reins coming into the hand between the thumb and forefinger, and held so as to feel lightly the horse's mouth, the right falling on the off side; (*Two*). Place a third of the left foot in the

stirrup, with the assistance of the left hand if necessary, and support it against the forearm of the horse; rest upon the ball of the right foot; place the left hand on top of the neck, well forward, and grasp a lock of the mane, the lock coming out between the thumb and forefinger.

At the command *mount*, spring from the right foot, holding firmly to the mane, and keeping the right hand on the pommel; bring the heels together, the knees straightened and resting against the saddle, the body erect.

(Two.) Pass the right leg, knee bent, over the croup of the horse without touching him; let the body come gently down into the saddle; let go the mane, insert the right foot in the stirrup, pass the reins into the left hand and adjust them.

At the command, 3. *Form*, 4. *RANK*, the even numbers move up as before explained.

*Position of the Trooper Mounted (with Saddle).*

374. Same as previously explained, with the following exceptions: Buttocks bearing equally and as flat as possible upon the middle of the saddle; the reins coming into the left hand on the side of the little finger, and leaving it between the thumb and forefinger; the little finger between the reins, the right rein above it; the other fingers closed, the thumb pressing the reins firmly on the second joint of the forefinger; the end of the reins falling to the front and outside of the right rein; the left forearm horizontal, and close to the body without pressure; the wrist turned inward, so that the back of the hand is almost perpendicular to the front and vertical; the right hand behind the thigh, the arm falling naturally; the feet inserted in the stirrups so that the balls of the feet rest on the tread of the stirrups, the heels slightly lower than the balls of the feet.

*Stirrups.*

375. The stirrups should support the feet and the weight of the legs only, and be of such length that when the legs are in proper position, the feet out of the stirrups, the treads will be on a level with the lower part of the inner ankle bone.

The length depends somewhat on the formation of the man; a man with a thick, heavy thigh requires a shorter stirrup than a man with a thin, flat one. Also the gallop and trot, for long distances, require a shorter stirrup than the walk.

When riding with the stirrups, they support, in a measure, the weight of the body in its descent to the saddle, by a yielding of the

ankles to prevent shock. This action is an easy, quick stiffening of the muscles which distributes the downward motion between the feet, thighs and seat.

If, after the trooper has been exercised a short time at the slow trot, he has a close seat, with his leg in proper position with his heel down, and does not have a secure hold of the stirrup, then the stirrup requires shortening.

*To Cross the Stirrups.*

376. The instructor commands: CROSS STIRRUPS.

Throw the right stirrup over to the near side, then the left one to the off side, the straps resting on the withers in front of the pommel, the hoods outward.

The instructor frequently directs that the stirrups be crossed. The troopers mount and dismount with stirrups crossed as if the horses were unsaddled, placing the right hand on the pommel instead of on the withers.

Stirrups must be taken again during the first lessons at the gallop.

*To Dismount with Saddle.*

377. The instructor commands: 1. PREPARE TO DISMOUNT, 2. DISMOUNT.

At the first command the odd numbers move forward four yards, regulating by the right. All the troopers then seize the reins with the right hand, in front of and near the left, so that they come in on the side of the thumb and forefinger; place the right hand on the pommel, let go with the left hand; place it on top of the neck; grasp a lock of the mane, the lock coming out between the thumb and forefinger; take the right foot out of the stirrup; partly disengage the left foot, keeping the body erect.

At the command *dismount*, rise upon the left stirrup, pass the right leg, knee bent, over the croup of the horse without touching him; descend lightly to the ground, remove the left foot from the stirrup and place it by the side of the right, keeping the body erect; let go the mane; pass the end of the reins on the neck near the pommel of the saddle with the right hand, which then seizes the left rein. (Two.) Face to the left; take two short steps, left foot first; slip the right hand along the left rein and take the position of *stand o horse*.

At the command, 3, *Form*, 4. RANK, the even numbers lead up as before explained.

*The Curb Bridle.*

378. The general principles for the use of the reins and legs, already explained for the watering bridle, apply to the management of the horse with the curb bridle, except that the bridle hand is moved instead of both hands. In all movements of the hand the arm should act freely and without constraint to the body, and as the bit of the curb bridle is much more severe than that of the watering bridle, it must be applied gradually and more gently, particularly in halting and in reining back.

*To turn the horse to the right (or left).* Carry the hand a little forward and to the right (or left), so that the left (or right) rein bears on his neck.

*Spurs.*

379. The spur is an aid, and also a means of punishment. It is an aid when it is used to augment the effect produced by one or both legs; it is a means of punishment, when the horse refuses to obey the actions of the legs.

To use it as an aid, the trooper continues the pressure of the leg until the spur touches the skin, and adds its effect to that of the leg.

To use it as a means of punishment, hold firmly to the horse with the legs, turn the toes out a little, yield the hand slightly and press firmly with the spur behind the girth, without moving the body, until the horse obeys.

The spur must never be used unless absolutely necessary, and then with vigor at the moment the horse commits the fault. Unnecessary strokes will arouse his resentment and induce stubbornness; a thumping or a continuous light touch will either make the horse insensible to the proper action of the legs, or cause him to kick.

*Instructions with Saddle, Curb-bridle and Spurs.*

380. The movements already prescribed are repeated. The instructor causes recruits at first to use the saddle and watering bridle, and does not give them the curb-bridle and spur until they have confidence in their seat, and are able to ride fairly well.

As a general rule, after commencing the use of the saddle in the riding hall exercises, about one-half the time of each drill shall be without saddles, the saddles being removed and conveniently placed in the hall.

A man who can ride bare-back can ride with a saddle.



*The Gallop.*

381. The *gallop* is a succession of leaps, during which there is a small interval of time that all the feet are in the air. In galloping on a straight line, it is immaterial with which foot the horse leads, but troops will march with greater ease and comfort if all the horses lead with the same foot.

A horse gallops on the right foot when the right fore and hind legs move in advance of the left fore and hind legs; he gallops on the left foot when the left fore and hind legs are in advance. He gallops true when he gallops on the right foot in marching to the right hand, or on the left foot in marching to the left hand; he gallops false, if in marching to the right he gallops on the left foot, or conversely.

A horse is disunited when he gallops with the near fore leg, followed by the off hind leg, or the off fore leg, followed by the near hind leg; in either case his balance is deranged and his strength impaired.

When the horse gallops on the left foot, the rider feels a sensible movement in his position from left to right; when he gallops on the right foot, the movement of the rider is from right to left; when the horse is disunited, the rider experiences irregular movements; when the horse gallops true he preserves his balance, and in case of a mistake he has his legs under him and can more easily recover himself. When he gallops false or disunited he is apt to fall whenever he makes a blunder.

382. The *canter* is a short, collected gallop; the horse's forehead is raised, his whole figure is collected and shortened, his neck bowed and his head drawn in, and he moves by the spring of the haunches. It is the gait that should be used in the riding hall exercises and mounted gymnastics.

The gallop cannot be safely used in the riding hall, unless the horse gallops true and the track is in good condition.

*To Gallop.*

383. The recruits marching to the right hand, the instructor commands: 1. *To three yards take distance*, 2. TROT, 3. MARCH.

At the command *march*, the leading trooper takes the trot; each of the other troopers in succession take the trot when the one in front of him has gained the distance of three yards.

This precaution is taken with recruits to prevent the horses running on each other and causing confusion.

The instructor commands: 1. *Gallop*, 2. MARCH.

At the command *gallop*, gather the horse; at the command *march*, close both legs and rein in with a firm, light hand (this is to bring the haunches under), then carry the bridle hand to the left and press the right leg with vigor (these actions throw the weight on the near hind leg and allow the off fore and hind feet to lead); as soon as the horse rises give the hand and relax the right leg; reining in slightly and closing the legs with light pressure, will keep the horse at the gait and up to the hand; a dead pull should be avoided; if the horse leans on the hand, yield the hand and play the reins a little, then close the legs and rein in a little abruptly; as soon as the horse obeys, yield the hand.

The gait at first is restricted to the canter.

To keep the horse true, the rider must accommodate himself to all the horse's motions, particularly in changing direction at the corners. When a horse gallops false, or disunited, his rider is ordered to leave the column, come to a trot, and pass to the rear of the column, taking care not to interfere with the other men; arriving at the rear he resumes the gallop, the instructor explaining how to keep the horse true. The gallop to each hand will be kept up only once or twice around the riding school, the horses being brought to the trot before changing hands.

In turning the corners, the gait is apt to be too hurried. To correct this fault, the bridle hand should be carried forward (with pressure on the inward rein) and the horse supported with the inward leg.

The instructor will not at first dwell upon the mechanism of the gait, but allows each recruit to accommodate himself to the motion of the horse without losing his seat.

The men must keep their horses steady; when able to manage them properly at a gallop, the distance of one yard from head to croup is gradually resumed.

In order to make it easier for the trooper to start his horse true, the instructor will find it advantageous to march the squad in line with intervals across the hall at a trot and upon approaching the track, commands: 1. *By the right flank*, 2. *Gallop*, 3. *MARCH*.

Or, to give the command to gallop when the squad is circling at a trot.

When the squad has been sufficiently exercised at the gallop on straight lines and in circling, it is marched by the flank, and circling by trooper at a gallop; the instructor taking care that the turns are not made too short, that the troopers keep their horses true, and that they do not derange their positions. During these exercises the stirrups will sometimes be crossed.

*To Pass from the Canter to the Gallop, and the Converse.*

384. Being at a canter (on one of the long sides), the instructor commands: 1. *Gallop*, 2. *MARCH*.

At the command *march*, give the hand, and close the legs by degrees, until the horse increases his gait to a gallop; when the proper cadence is attained, the instructor pays particular attention to the positions of the troopers; if their seats become too much deranged, he brings the squad to a canter, or a trot.

385. To resume the canter, the instructor commands: 1. *Canter*, 2. *MARCH*.

At the command *march*, rein in by degrees until the horse moderates the cadence, closing the legs to prevent his taking the trot.

*To Pass from the Gallop to the Trot.*

386. The instructor commands: 1. *Trot*, 2. *MARCH*.

At the command *trot*, gather the horse; at the command *march*, rein in by degrees and hold the legs close; as soon as the horse trots, replace the hand gradually and relax the legs.

*Remarks.*

The object of the passages and the circlings on the forehand and haunches is to teach the horse to be obedient to the pressure of the leg and reins, and to instruct the recruits in the application of the aids.

Each of these movements will first be taught to the recruits separately. If the movement be new to the horses, the trooper should have one or two light pliant switches sufficiently long to reach the horse behind the girth, which are used at the time and on the same side as the pressure of the leg; when the horse yields, much should be made of him; it will encourage the horse to pet him after each effort.

Care is taken that the movements are not hurried, or too much required of the horse during the first trials.

387. To turn the horse on his fore-hand, the instructor commands: 1. *On fore-hand*, 2. *To the right (or left)*, or, 2. *To the right (or left) about*, 3. *MARCH*.

At the first command, gather the horse; at the command *march*, close the right leg behind the girth until the horse steps to the left with his hind feet, keeping him straight and preventing him from stepping off with his fore feet, by supporting him with the left leg and the reins; relieve the pressure of the right leg as soon as the horse obeys. Continue the application of these means until the

horse has turned to the required degree; the fore feet should remain in place. If the horse does not obey the pressure of the legs at first, open slightly the right rein.

If the horse steps his fore feet to the right, increase the effect of the left rein to keep them in place.

388. To turn the horse on his haunches the instructor commands: 1. *On haunches*, 2. *To the right (or left)*, or, 2. *To the right (or left) about*, 3. **MARCH**.

At the command *march*, rein in, to throw the weight on the haunches and close the legs to prevent him from backing; then carry the bridle hand to the right, pressing the left rein on the horse's neck, to make him step with his fore feet to the right, at the same time supporting him with both legs, the left leg well behind the girth to keep the haunches in place.

#### *To Passage.*

389. Being upon a long side, the squad is marched by the flank and halted, head to the wall or track, when it arrives near the opposite side. The instructor then commands: 1. **RIGHT (OR LEFT) PASS**, 2. **MARCH**, 3. *Squad*, 4. **HALT**.

At the first command, gather the horse and incline him to the right, by carrying the bridle hand slightly to the right.

At the command *march*, rein in, close the legs, to force the horse to the bit; bear the hand well to the right, the left rein pressing the horse's neck, and close the left leg behind the girth, keeping the body erect; keep up the passage by a gentle application of the same means.

The horse's shoulder should precede the haunches, that is, he is held inclined to the right. Only a few steps should be taken at first.

At the command *halt*, replace the bridle hand; relax the pressure of the left leg as soon as the horse moves his haunches, and is straight in line.

The application of the reins and legs should be in harmony with the sensibility of the horse; if the horse obliques too much, diminish the bearing of the reins; if he steps too quickly, moderate the effects of reins and legs; if he backs, force him up to the bit by pressure of the legs.

The passage in column may be executed by the application of the same means.

#### *Jumping.*

390. For this exercise the height of the bar should be at first one foot, and the width of the ditch, two feet. As the men and

horses become used to jumping, the height of the bar and the width of the ditch are gradually increased; this exercise should generally be practiced near the end of each drill.

Horses are first taught to jump the ditch, then the bar. They are equipped with the watering bridle, and follow a steady horse who is accustomed to jumping.

This instruction is also given on the longe.

The horses are taken in the open field and practiced at jumping shallow ditches, fallen logs, very low fences, etc. If the horse refuses to take the jump, the instructor may give aid with the whip, but in such a way as not to terrify him. If the horse be timid, it is sometimes advisable to place the bar on the ground. Great discretion must be used in applying the whip, and the horses will not be required to jump repeatedly over the same thing or at the same place.

391. The instructor forms the squad in line, about thirty yards from the obstacle, and commands: 1. *First trooper from the right (or left)*, 2. MARCH, 3. NEXT.

At the command *march*, the trooper on the right moves to the front at a walk; he takes the trot when he has passed over about one-third the distance and then the gallop.

After making the jump, he takes the trot, then the walk, and takes his place in the rank, which is reformed about thirty yards beyond, and on the right or left of the obstacle, and facing it.

The other troopers move out successively from the right at the command *next*.

392. In the riding hall, the troopers are formed in two squads, in line, facing each other at opposite ends of the hall; two bars are placed across the track, one on each of the long sides of the hall, about midway.

The instructor commands: 1. *First trooper from the right (or left)*, 2. MARCH, 3. NEXT.

At the command *march*, the trooper on the right of each squad moves out at a walk and marches diagonally across the hall; on passing each other both take the trot and when abreast of the flank of the opposite squad, they take the track at a gallop (or canter), the horse leading with the right foot; after jumping both bars, each trooper takes the trot, then the walk, passing around the left flank of the opposite squad, marches at a walk diagonally across the hall, and forms on the left of his squad.

The other troopers move out successively from the right of each squad at the command *next*. *This rule is general for individual exercises.*

*The Standing Jump.*

393. In making the standing jump, the horse is kept at a walk. Ride the horse up to the bar or other obstacle, at an animated walk; rein in with a light hand and close the legs with energy to place him on his haunches, then yield the hand and legs as the horse rises, feeling the reins only enough to prevent them from becoming slack; grasp the horse firmly with the knees and legs without turning out the toes, keeping the seat close; hold the body erect by inclining forward; as the horse is grounding keep the body erect by leaning backward, and gather the horse to support him; continue the march at a walk.

*The Flying Jump.*

394. In making the flying jump, the same general principles are observed as when making the standing jump. The horse must not be hurried nor allowed to rush, but be held steady and straight for the bar or other obstacle.

If the obstacle be high, bring the horse up at a collected canter, rein in near the obstacle with a light hand and close the legs, without turning out the toes, with a vigorous pressure to make him spring high enough to clear the obstacle.

*To Jump the Ditch.*

395. Ride straight for the ditch at a steady animated gait, close the legs firmly without turning out the toes and keep a firm hand; the instant the horse springs, give the hand, and as he grounds sustain him with a light steady pressure.

The instructor must observe that the trooper does not thrust his weight into the stirrups nor throw out his elbows, nor check his horse too abruptly. If the horse is checked with a sudden violence after making the jump, he takes it as a punishment and may thereafter try to avoid the obstacle.

Recruits are apt to try to sustain themselves instead of the horses; to prevent this, the instructor may find it necessary to allow them to place the bridle hand on the horse's neck until they have gained confidence. If necessary the bar should be lowered to a height at which the recruit can easily keep his seat.

When the troopers have attained confidence, leap without checking, and maintain control over their horses after the jump, they may be exercised at jumping with sabers drawn, from line or column, by trooper, twos, fours or line entire. When in column, the troopers, twos, fours or platoon, may continue the march at a walk and ap-

proach the obstacle by taking the trot and gallop in succession; they close distances after passing the obstacle, the head of the column continuing the march at a walk. The troopers will be practiced jumping obstacles without saddles, without stirrups and with girths unfastened.

396. To leap the bar, dismounted, with the horse.

The squads are formed in line and the troopers move out as prescribed for jumping. The trooper dismounts four or five yards in front of the bar, takes the galloping step and the position of prepare to mount, jumps with the horse, comes to the ground at the same time as the forefeet, takes the galloping step and mounts; when the seat is assured he takes the position of the trooper.

In leaping the bar, the trooper should be careful to *spring*, and not drag on the horse which might turn him and make him fall.

After the troopers have become expert, they may be required to mount as soon as the horse raises his forehand to continue the gallop after leaping the bar.

The troopers will also be required to mount the horse while leaping the bar. These exercises are executed from both sides of the horse, and with or without saddles.

#### *The Wrestle.*

397. The troopers are instructed as to the nature of the exercises. At the command: 1. *First trooper from the right*, 2. MARCH, the right trooper of each rank moves out at a walk; they approach each other on the side indicated by the instructor; when they come together they halt, lock hands or arms or clasp arms about each other's waist, and each, retaining his own seat, endeavors to dismount the other.

The sections being in line with intervals at opposite sides of the hall, facing each other, and the troopers in one rank being opposite those in the other, the instructor commands: WRESTLE. At this command, the sections approach at a walk and each trooper wrestles with the one opposed to him. At the command *attention*, they cease wrestling and resume the former formation.

The squad being in any formation. At the command: 1. *At will*, 2. WRESTLE, the troopers wrestle with adversaries of their own selection. At the command *attention*, they form as they were previous to the command wrestle.

#### *The Pursuit.*

398. The objects of the pursuit are to test the trooper's skill in horsemanship and to confirm his confidence.

The instructor prescribes the limits or boundaries within which the *pursued* may ride; if he leaves these limits to avoid the *pursuer*, the pursuit ceases in favor of the pursuer and both troopers return to the squad.

The instructor designates two troopers, one as the "*pursued*," or No. 1, and the other as the "*pursuer*," or No. 2; he indicates a point toward which No. 1 will march until the pursuit is ordered. The instructor commands: *MOVE OUT*. No. 1 leaves the squad and marches at a walk in the direction indicated, followed by No. 2 at a distance of about fifteen yards. At any time after they have this distance and before reaching the designated point, the instructor commands 1. *The pursuit*, 2. *MARCH*.

No. 2 will endeavor to touch No. 1 on the body (excepting the arms, hands, legs and feet) with the right hand, or to pluck a rosette or something of the kind fastened on the shoulder or breast of No. 1. No. 1 will endeavor to prevent this by turning, circling, reaching, dismounting, etc.

At the signal or the command *halt*, the pursuit ceases and the contestants return to the rank.

The instructor sees that the conditions laid down for the exercise are observed and that the horses are not overworked. The ground for this exercise should be selected with reference to obstacles to jump.

399. The wrestle may be combined with the pursuit.

*First.* The pairs being formed as for the pursuit, the instructor indicates the nature of the exercise and conducts it similarly to the pursuit, the result desired being to overtake and dismount his antagonist.

*Second.* The squad being in any formation, the instructor commands: 1. *At will*, 2. *PURSUE AND WRESTLE*. The exercise is conducted similarly to the wrestle at will.

Any of the exercises may be executed at will, *e. g.*: 1. *At will*, 2. *DISMOUNT and MOUNT*, (or 2. *VAULT*, or 2. *DROP SABER*, 3. *RIGHT and LEFT LOW*, 4. *REACH*).

At the command *attention*, the troopers reform line or column.

#### *Exercises at Will.*

400. The instructor commands: *AT WILL*. At this command the troopers will be permitted to do any or all the exercises herein, and to exercise their own ingenuity and fancy. The instructor must be on the alert to prevent disorders or improprieties. At the command



*attention*, the troopers resume their places in the formation they had at the command *at will*.

The object desired by the exercises at will is to develop the individuality of the trooper.

MANUAL OF THE CARBINE, MOUNTED.

401. Carbines being slung, when the trooper has placed himself opposite the horse's shoulder after the command *prepare to mount*, he passes the carbine over the right shoulder, letting it rest against the back, muzzle downward.

After mounting the trooper executes *return carbine*. (Par. 403.)

At the command *prepare to dismount*, the trooper takes the carbine from the boot with the right hand and passes it over the right shoulder in the same manner as at the command *prepare to mount*; as soon as he dismounts, the position of sling carbine is taken.

402. 1. *Advance*, 2. CARBINE. Grasp the piece at the small of the stock with the right hand; raise it, and place the butt upon the right thigh, barrel to the right, the piece inclined to the front at an angle of about thirty degrees.

403. 1. *Return*, 2. CARBINE. Lower the muzzle, carry the carbine to the rear, insert the muzzle in the boot and drop the right hand by the side.

*To Load the Carbine.*

404. Being at advance carbine, the instructor commands: 1. *Prepare to load*, 2. *LOAD*.

Drop the piece into the left hand, muzzle to the front and to the left, barrel pointing downward at an angle of about forty-five degrees, supporting the carbine at the balance by the thumb and forefinger, the other fingers closed on the reins, taking care not to change the feeling of the reins; load the piece as in Par. 104, and take *advance carbine*.

The piece may be loaded from the position of *return carbine*, by the same commands, raising it from the boot.

405. Being at advance carbine: 1. *Squad*, 2. *READY*.

Cock the piece with the right thumb, and return the thumb to the small of the stock.

AIM.

406. Drop the carbine into the left hand as in load, raise it with both hands, and aim as in Par. 111, well to the left of the horse's head.

In aiming care should be taken not to disturb the horse by a change in the feeling of the reins; this may be effected by slipping the left hand along the stock and leaning the body forward a little.

FIRE.

407. Fire as in Par. 112 and resume advance carbine.

*Cease firing*, is executed as in Par. 165 and 166, except that the piece is brought to advance carbine.

*Cease firing, load*, is executed as in Par. 176, except that the piece is brought to advance carbine.

408. *Draw Cartridge*, is executed as in Par. 110, and then resume advance carbine.

The cartridge is always drawn before executing return carbine. *This rule is general.*

409. Being at return carbine: 1. *Inspection*, 2. CARBINE.

At the command *carbine*, raise the carbine and pass it into the left hand as in load, open the chamber and take advance carbine.

Each trooper after the inspector has inspected his carbine and passed, lowers it into the left hand as in load, closes the chamber and returns carbine.

*Inspection of Arms (mounted).*

410. The troopers being fully armed, and at return carbine: 1. *Inspection*, 2. ARMS.

At the command *arms*, all the troopers take the position of inspection carbine.

The carbines are then inspected as in Par. 409. Each trooper after he returns carbine, unbuttons the flap of the pistol holster.

The pistols and sabers are inspected as in Pars. 123, 124 and 125.

To inspect the squad more minutely, the inspector dismounts the squad and without forming rank, commands: 1. *Inspection*, 2. ARMS.

Each trooper, as the inspector approaches him, drops the reins, executes unsling carbine and open chamber, then passes his right hand inside and under the right rein and returns the hand to the small of the stock; the rein rests in the bend of the right arm. The inspection is executed as in Pars. 123, 124 and 125.

The inspection usually begins on the right of the rank of the odd numbers; the inspector then passes in rear of the rank from left to right, inspecting the horses and equipments; in like manner, he then inspects the rank of the even numbers.

MANUAL OF THE SABER, MOUNTED.

411. The instructor causes the recruits to take the saber when they can ride well.

The saber is unhooked when the trooper has placed himself opposite the horse's shoulder after the command *prepare to mount*.

After dismounting, the saber is hooked up and the position of stand to horse is taken. *This rule is general.*

Before beginning the manual a few movements may be executed to quiet the horses.

412. The manual of the saber mounted is executed as when dismounted, except as herein provided.

413. The saber is drawn without using the left hand. At the command *draw*, reach with the right hand over the bridle hand and pass it through the saber knot, without quitting the reins with the left hand; seize the gripe and draw the blade six inches from the scabbard.

*Position of Carry Saber, Mounted.*

414. Back of the blade against the right shoulder, edge to the front, the wrist resting on top of the thigh, the forearm near the body, the little finger outside of the gripe.

The instructor sees that the position of the bridle hand is not deranged and that the right shoulder is not thrown back.

415. The saber is returned without using the left hand. In returning the saber while marching, the back of the blade rests against the left arm until the point enters the scabbard; but if the scabbard is attached to the saddle, the trooper may be permitted to assist with the left hand in inserting the point in the mouth of the scabbard.

416. Before executing the saber exercises mounted, the instructor causes the squad to take distances to the front.

Being in line, the instructor commands: 1. *Front take distance*, 2. *MARCH*, 3. *Squad*, 4. *HALT*.

At the command *march*, No. 1 of each four marches straight to the front; No. 2 of each four marches straight to the front when No. 1 has a distance of four feet in front of his horse; No. 3 and No. 4 move off in succession in like manner; the command halt is given when Nos. 4 have attained their proper distances.

417. To form line again, the instructor commands: 1. *Form*, 2. *RANK*.

At the command *rank*, Nos. 1 stand fast and Nos. 2, 3 and 4 move up into their intervals, between Nos. 1 and halt.

The instructor may form the squad in column of troopers and then form line by marching by the flank and halting with intervals.

418. The saber exercise is executed as when dismounted, except that at the command *guard*, the troopers move the right hand and saber only.

419. As the recruits become more skillful in the use of their sabers they are practised in the saber exercise while marching in column of troopers at all gaits, care being taken to increase the distance to two yards. They will also be exercised in leaping the ditch and the bar, at first with the saber in the scabbard, afterward with the saber drawn.

## NOTES AND COMMENTS.

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### MARCHING AND CAMPING.

In reading Colonel BERNARD's article and the discussion thereon, we are struck by the lack of agreement between the authors, several of them officers of great experience and well known in the army. Throughout the entire service it is the same. Scarcely two officers agree as to the methods to be used in camp and on the march; and some of the opinions, on even the most essential points, are so much at variance that it is hard to believe that part of them are not radically wrong. In what a sad plight is a young officer when he looks to his elders for guidance in this most important part of his duty! For instance, if he were to inquire of Colonel BERNARD how to make an ordinary day's march, he would be told to do it at a walk of four and a half miles per hour. Colonel HENRY would put in a slow trot of ten minutes and five or ten minutes leading in every hour. Captain WOOD does not lead on such a march. Major CHAFFEE marches five miles per hour, taking alternately a walk and a slow trot of two hundred and fifty yards per minute (8.52 miles per hour). Everywhere we find similar differences.

The almost equally important art of breaking camp, scarcely touched upon in this discussion, is the subject of quite as large a number of theories; and on minor, yet important points there is the same lack of uniformity. There must be some *best* method for the average cases, and it is believed that a board of experienced and competent cavalrymen could evolve a scheme which would come near this. Their conclusions, given the proper authority, would put an end to the numberless styles now in vogue, some of which must depart widely from the correct system. Many marches are scarcely anything but experiments, and many a good officer has learned his method by making mistakes, which were anything but a pleasure to him and were by no means a profit to the government. Experiments are very well when made intelligently and under proper direction and control, but they are too expensive to allow their being made when the right way has already been discovered and can easily be pointed out.

In the past the conditions have been such that everyone con-

ducting a march has been almost free from control and at liberty to follow his own ideas; but now marches are being ordered for the purpose of instruction, and it is a good time to prescribe some general method, so that the instruction will not be different in every command. In the present tactics too much effort at condensation was made; such instructions as are given are indefinite, and they seem to have little binding force. The new instructions should cover all the cases most likely to occur, such as marching with or without forage, with wagon transportation or with pack mules, or without either, &c. When once adopted they should be rigidly enforced, deviations being allowed only in exceptional cases, when explanations should invariably be rendered.

A great deal of care and work will be required to get up a proper set of rules. Our own experience should dictate much that is to be adopted, but it would be most unwise to overlook the great experience that has been gained in handling the immense numbers of cavalry troops still kept up in Europe.

It would be better to let matters alone, allowing each man to pursue the course pointed out by his experience and common sense, than to have a system that would not stand the test of use and that would need patching up as soon as tried. The tactical board now in session can incorporate the instructions in the new drill book, and to get the best results it would seem well for the association to invite further discussion of the question, requesting its members to submit a brief outline of the plan each thinks best. These opinions boiled down would be of great value to those in charge of the work.

W. E. SHIPP,

*Second Lieutenant Tenth Cavalry.*

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#### PASSAGE OF THE DNIEPER BY TWO TROOPS OF COSSACKS.

On May 31st at Kieff (near the village of Kourenevka) the Fifth and Sixth Sotnias of the First Regiment of Oural Cossacks, swam the Dnieper, passing to the left bank and then returning. The troops, under the personal command and following the example of Colonel MIKHAILOFF, commanding the regiment, accompanied by officers of the regiment, and its Lieutenant-Colonel, crossed the Dnieper at a point where the current runs over one and one-half miles per hour near the bank, and over two miles per hour in the middle, and where the width is over seven hundred yards.

The right bank is steep and slippery and covered with stones and roots; the other bank is sandy with an easy slope.

The passage commenced by sending five volunteers across; they had the difficult task of receiving the horses upon the opposite bank, not allowing them to land at the place where the bank is closed by rafts, but forcing them to go over two hundred yards farther. The troops, preceded by their chiefs, then crossed in column of threes. It was a strange sight to see these heads of men

and horses spread over the river, and hardly visible from the point of departure. The silence was only broken by the neighing of the horses, which could be heard for a long distance.

The head of the column entered the water at twenty minutes past six, and twelve minutes after, it reached the opposite bank. The men swam on the "up river" side, most of them holding by the mane; those whose horses moved more slowly, held to the tail; some swam across, holding the reins in the teeth only. The horses were not unbridled.

A non-commissioned officer crossed without a horse, eight minutes ahead of the volunteers and selected the point of landing.

The regimental commander announced that those who could not swim or who feared to cross, might remain on the right bank, but no one accepted this offer. The small boats that had been provided to carry aid in case of need were only used by the spectators.

It was not easy to make the horses leave the bank, or to get them to cross the current. It was necessary to swim over four hundred yards along the bank at one hundred yards from the shore; besides the horses had to jump into the water from the top of a steep bank. The movement was executed more easily by the horses in rear of the first. Some, moreover, took the current directly; two or three horses, after reaching the middle of the river, wished to return, but were prevented by the cossacks swimming by their sides; two or three tried to throw themselves upon each other, (one on account of fatigue,) but their riders succeeded in restraining them.

Upon the opposite bank, after resting for five minutes, the return was executed with more order and quickness; the horses moving more willingly and crossing the current in a better manner.

The entire distance in going was over eighteen hundred yards, which made more than two miles for the double trip.

As we have already remarked, the horses were not unbridled; in fact it is shown that the bridle or rein was a great help in case the horse wished to turn back.

To conclude with some advice: Ride the horse into the water; he will then be more willing to go into deep places. When the horse begins to swim, leave the saddle and hold to the mane on the upper side. Good and sure swimmers can hold by the tail; it is easier for the horse, but he cannot be controlled so easily in this way. The swimmer need make no effort, as the horse will easily pull him along.—*Revue du Cercle Militaire, July 28, 1889.*

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#### A HAND-PROTECTOR FOR THE RIFLE.

In order that men may seize the weapon with bare hands without burning themselves, after rapid and prolonged firing, the Austrians have just adopted a hand-protector, in the shape of a sail-cloth case, covering the stock and barrel in front of the sight. Within this case, a piece of felt rests upon the barrel, and a piece of leather covers the magazine.—*Revue Militaire de l'Etranger, July 15.*

## THE LANCE IN THE GERMAN MOUNTED SERVICE.

In consequence of the reports that have been received from the regiments experimentally equipped with lances, all the cavalry will now be armed with the lance. The dragoon and hussar regiments have already been assigned one hundred and twenty lances each, with the exception of those that take part in the Imperial maneuvers next month. The "Regimental Instructors" of the Uhlan regiments have already been taught the use of this weapon. After the Imperial maneuvers the remaining cavalry regiments will also receive the lance; so that from October 1st, the German mounted troops will be, as far as weapons and equipment are concerned, a cavalry unit.—*Deutsche Heeres-Zeitung*, August 3d.



## REVIEWS AND EXCHANGES.

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*The Operations of the Michigan Cavalry Brigade in the Gettysburg Campaign.* Address by General JAMES H. KIDD on the occasion of the dedication of the monument erected on the battlefield by the State of Michigan.

*Dedication of the Monument of the Sixth Pennsylvania Cavalry on the Battlefield of Gettysburg, October 14, 1888.* Address of Colonel F. C. NEWHALL.

*Dedication of battle monument and annual reunion of the Tenth New York Cavalry, at Gettysburg, October 9-10, 1888.*

*Oration of Colonel W. L. Heermance at the dedication of monument, Sixth New York Cavalry, at Gettysburg, July 11, 1889.*

In the hot times of the great war the calls for action followed the trooper so closely, the rests were so short, the lines of communication so insecure, that cavalry records are scarce, meager and often misleading. War correspondents like FORBES, MACGAHAN and FINNERTY did not ride in that day at the heads of cavalry columns, ready for any turn of the fight or foray. So it has happened that our arm has received scant notice in the chronicles of the times and amid the flow of reminiscence which followed the war the trooper's voice has been seldom heard in assertion of his deeds. The pamphlets which we notice here are a valuable addition to the literature of Gettysburg, as well as an encouraging sign that the silence is to be broken and that the history of the cavalry is in good hands.

Colonel NEWHALL has spoken to the point several times before; General KIDD's paper is a most valuable one and deserves a much more extended notice than our space will now permit.

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*Between the Lines.* By Captain CHARLES KING, U. S. A. Harper's, New York, 1889.

A bright soldierly story, full of the glowing life which coursed through the veins of so many of the young heroes of a quarter of a century ago, both those who wore the blue and their opponents in the grey.

Captain KING has here exchanged the plains and mountains of the West for the beautiful valleys of Virginia as a scene for the ac-

tors in his drama, and instead of the weary little column of troopers trailing up some blazing cañon in Arizona, or silently closing in on the doomed village of Sioux or Cheyennes in Montana, we now see the dense columns of the cavalry corps of the Army of the Potomac and the Army of Northern Virginia.

The character sketching is good throughout. The hero, Lieutenant KEARNY, is the type of the young soldier of the North, cheerful, resolute and full of zeal for his cause. Fresh from his *alma mater*, Princeton, he gives up home, friends, and the bright career opening before him, to obey his country's call to arms. We all recognize him, though under many names, and too well also do we know the wretched MULLANE, the ward politician turned soldier, disgracing the uniform he wears and the country which supports him, by shameful excesses. VAN DUZEN, the political colonel, with an eager eye on the "constituency" at home and a tender regard for the newspaper correspondents in camp, is capitally drawn, as are the brave old soldiers, GRAHAM with his long army training, and WESTERLO veteran of a score of European battle-fields.

The story of old Judge ARMISTEAD with his strong union sentiments up to the very hour of secession, but who feels it his duty to go heart and soul with his State when she has once declared her course, is that of many a southern gentleman, but the unjust suspicions under which he falls and the complications resulting from his son's magnanimous treatment of a wounded foe, are new and striking.

The old judge's daughter, sweet LUCY ARMISTEAD, is attractive and winning, as KING's heroines are wont to be, and KEARNY's love for her furnishes the thread on which is strung the brilliant series of cavalry exploits, which make up the story. The account of GREGG's brilliant cavalry battle on the right at Gettysburg, is splendidly told and many a veteran of the old Second Division will feel his pulses thrill as he brings to mind the phases of that encounter. Every page is full of life and incident. We see the fluttering guidons; we hear the thunder of the hoofs and the clashing of the sabers. Once again after many long years we hear the trumpets of the peerless JOHN BUFORD, and of GREGG, of MERRITT and CUSTER and FARNSWORTH, as the squadrons sweep by over the long green meadows of the great valley. Once again we hear the guns of CUSHING as they flash defiance in the very face of PICKETT's legions, and once again sweep by at the gallop the pets of the cavalry corps—the splendid batteries of the horse artillery under their gallant young commanders, WILLISTON, DENNISON, RANDALL, WOODRUFF and the rest. We see them all as we turn over these pages. Yes, we are boys again, the mist rises, the eyes fill, and the present fades from view—it is '63 again, the trumpets ring "To Horse!" and the brigade is going into action.

"With helm and blade and lance arrayed,  
And plumes in the gay wind dancing,  
With squadron square we'll all be there,  
To meet the foe advancing."

Captain KING has given us a capital story—the best we have yet had from his pen, and the army in general and the cavalry in particular are once more deeply in his debt for the accurate presentation of the stormy scenes now fading into the past.

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